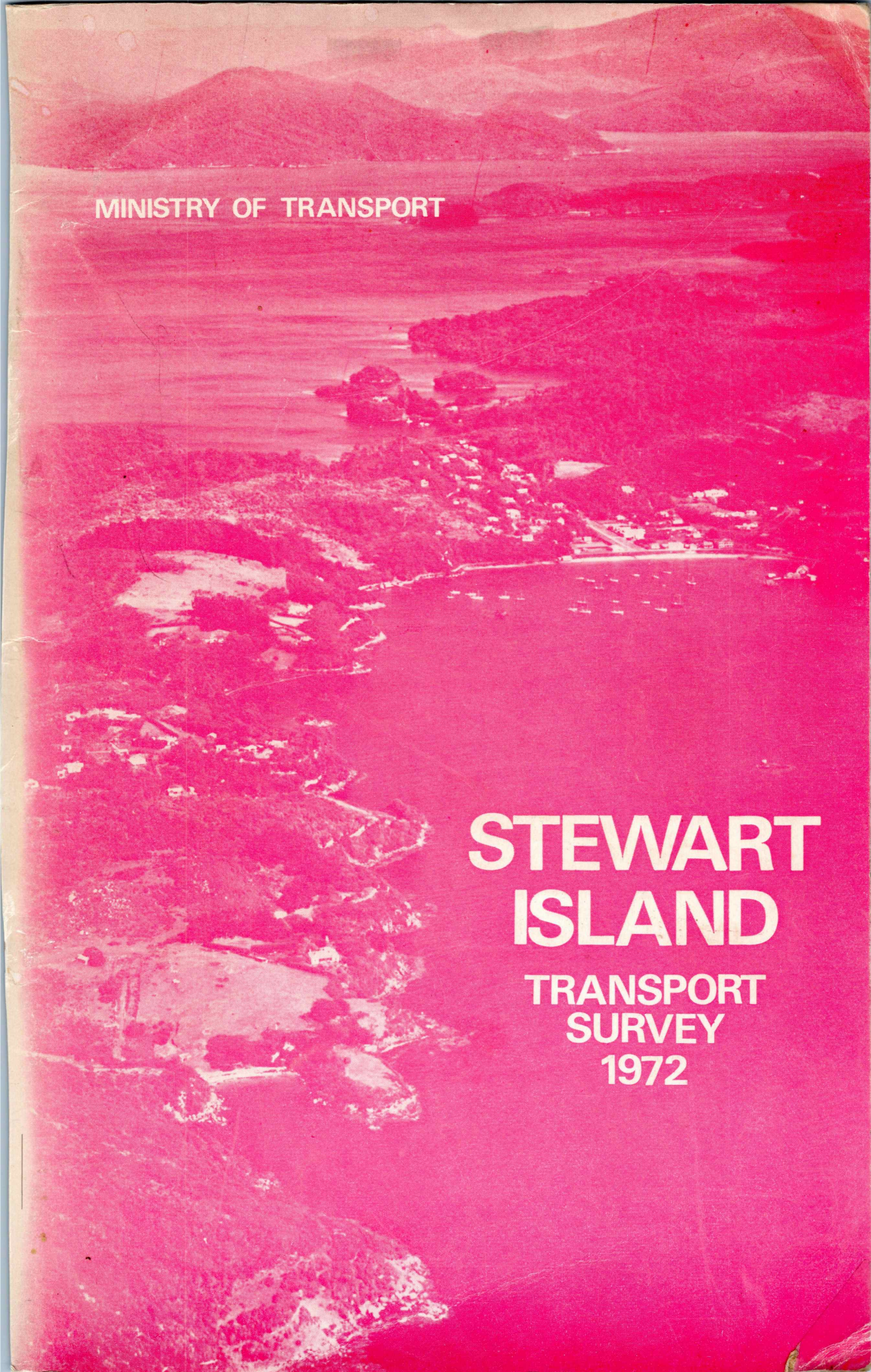
MINISTRY OF TRANSPORT



STEWART ISLAND

TRANSPORT SURVEY 1972

STEWART ISLAND TRANSPORT SURVEY 1972
ERRATA

Page 33, table 6, under 18.40, insert "includes wharfage at Bluff and Stewart Island".

Page 33, fourth line from bottom should read "Rock lobsters (per 20 lb case) $0.42 .... $47.04".

Page 34, last paragraph should read "At current rates, total freight income on this quantity would be $35,634. The standard rate to produce the same level of freight income from fish is $35.32 per ton. Adoption of this standard rate would involve a 24.9 percent decrease in the rate for rock lobster and a 23.2 percent increase in the rate for wet fish and paua."

Page 35, fourth line should read "Rock lobster .... 137.6 tons at $47.04 = 6,473". Total should read .... "$13,962".

Page 42, line 14, for "Rock lobster (per 50 lb case)", substitute "Rock lobster (per 20 lb case)".

Page 45, table 11, for "Rock lobster (per 50 lb case)", substitute "Rock lobster (per 20 lb case)".

STEWART ISLAND TRANSPORT SURVEY 1972

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Page 33, table 6, under 18.40, insert "includes wharfage at Bluff and Stewart Island".

Page 33, fourth line from bottom should read "Rock lobsters (per 20 lb case) $0.42 $47.04".

Page 34, last paragraph should read "At current rates, total freight income on this quantity would be $35,034. The standard rate to produce the same level of freight income from fish is $38.32 per ton. Adoption of this standard rate would involve a 24.9 percent decrease in the rate for rock lobster and a 23.2 percent increase in the rate for wet fish and paua."

Page 35, fourth line should read "Rock lobster ... 187.6 tons at $47.04 = 8,473". Total should read ... "$15,952".

Page 42, line 14, for "Rock lobster (per 50 lb case)", substitute "Rock lobster, (per 20 lb case)".

Page 45, table 11, for "Rock lobster (per 50 lb case)", substitute "Rock lobster (per 20 lb case)".

MINISTRY OF TRANSPORT

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STEWART ISLAND

TRANSPORT SURVEY 1972

Survey undertaken and report compiled by:

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1. INTRODUCTION

General

This study was instigated by the Minister of Transport following representations made to him by Mr H. C. Templeton, M.P., who had been approached by the Stewart Island County Council. The Minister directed that the study would be carried out conjointly by the Ministry of Transport and the Marine Department. Consequently, a team of three was appointed, one from the Marine Department and one each from the Airports Management and Economics Division of the Ministry of Transport. Terms of reference governing the study were agreed to by both departments and the Stewart Island County Council.

As the title indicates, this is a study of the present and future transport requirements of Stewart Island. The terms of reference for the survey team govern the course of the study, but the team has found it necessary to consider other aspects not specifically mentioned, to illustrate the unusual situation existing for people who live on off-shore islands totally dependant as they are on efficient and frequent transport links.

During the course of the study, the team visited Stewart Island on two occasions, spending 2 nights on the island and having lengthy discussions with various organisations and personalities either resident on the island or closely connected with its economy. This enabled the team to more clearly assess the needs of the island as seen by the residents and relate it to what the team thinks would be in the best long-term interests of the island.

An attempt was made to compare the cost of Government services to Stewart Island with the taxation yield from the island. Unfortunately, the Commissioner of Inland Revenue declined to provide taxation details and it proved impossible to relate the multi-Government services to the tax yield.

Geography

Stewart Island is the most southerly of the three islands. It is situated between 17 and 30 miles south from the mainland of the South Island and separated from it by Foveaux Strait. The island is roughly triangular with an apex towards the south. The area is some 675 square miles, being mostly heavily forested and mountainous. The coastline is very ragged with a multiplicity of small

bays and inlets. The majority of the land surface and many of the out-lying islands are preserved as either a scenic reserve or as a flora and fauna reserve. Among the smaller islands are the Mutton-bird or Titi Islands.

All settlement is now established around the north-east coast and is centred on the township of Oban which contains a post office, police station, school, hotel, private hotel, and two general stores as well as the ferry wharf and other facilities.

Walking tracks radiate out from Halfmoon Bay, giving access to the inland plains, mountains and lakes. The New Zealand Forest Service maintain some of these tracks and provide hut accommodation for numbers of trampers, naturalists, botanists, and others interested in the natural beauty of this island, the native fauna and flora and a variety of bird life not found in such profusion elsewhere. Deer, both red and Virginian, abound throughout the island, and this also is an attraction for hunters.

Climate

Full climatic data is not available. However, many sources indicate that the rainfall is 57 in. annually and that the prevailing wind is westerly. Strong winds are common and the rainfall is spread evenly over the year with rain falling on about 212 days. The climate is moderate with summer temperatures seldom rising above 12° and winter temperatures rarely dropping below freezing. Snow and frosts are rare.

The main climatic features are the even spread of rainfall, strong westerly winds and cool to mild temperatures. It is thought by many that this combination does not enhance the prospects of Stewart Island being established as a major tourist attraction.

Population

According to the Department of Statistics publication *Population, Migration, Building, 1969–70,* the population in March 1966 was 322. It is now estimated to be 410. The majority of residents live within a 3-mile radius of the Oban township.

In an analysis of the 1969 electoral roll, when the population was estimated to be 340, it was seen that 55 percent (111 people) of the voting population (201) were non workers and 31 percent (62 people) fishermen. The remaining 14 percent (28 people) represented a variety of occupations including public services. It is interesting to note that no voter is listed as a farmer. The remaining 41 percent of the total population (340) represent pre-school children, school children, and non-adult workers.

As approximately 40 percent of the residential buildings are holiday homes, the population increases significantly during the summer period and particularly so during the holiday season and at weekends.

Rates

The following table illustrates the income available to the Stewart Island County Council from rating levies for 1971–72:

Table 1

1. Population	410	
Number of valuation assessments	535	
Gross capital value	$1,125,000	
Net capital value	$942,000	
Gross unimproved value	$209,000	
Net unimproved value	$150,000	
System of rating	Unimproved value	
2. Rates and charges levied	$	
General rates	6,922	
Other rates	5,230	
Total rates	12,452	$12,452
Total received—General rates	5,741	
Other rates receipts	4,598	
Total receipts	10,339	$10,339

Economics

Tourism

As mentioned later in this report, the fishing industry is the basis of the economy of Stewart Island. With the fishing industry in Stewart Island apparently at a stage where economic growth will be gradual rather than spectacular, the survey team is of the opinion that the only other area in which the economy of the island could be boosted to any significant extent would be in the field of tourism.

The survey team found that in general terms the residents of Stewart Island show little enthusiasm themselves in promoting tourism on the island. The business community, on the other hand, is enthusiastic to the concept of increasing the number of tourists to the island and have in fact taken some steps themselves to promote the island and increase its tourist potential.

Stewart Island virtually remains in its natural state and has great appeal for the nature lover, tramper, etc. Outside of its natural charms, the island offers very little to attract the average New Zealander or overseas tourist. Accommodation is limited to one hotel and a large private hotel, and while these are considered by various people to be of reasonable standard, they do not provide the

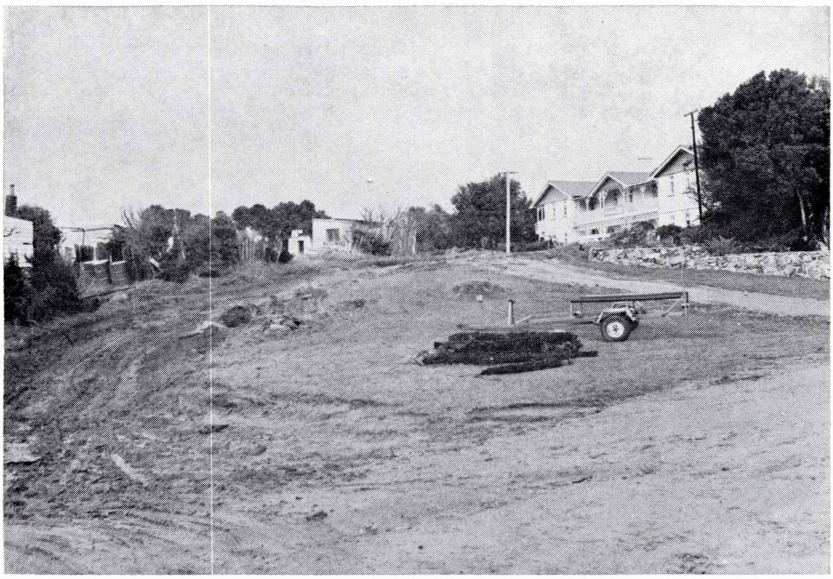


Figure 1. Front view of private hotel, also showing improvements being made to hotel approach road

Figure 2. Side view of licensed hotel looking towards Halfmoon Bay

extra facilities which would attract the overseas tourist and the more affluent New Zealand tourist, who is now able to obtain, throughout the country, a standard of accommodation which is generally superior to that at present available at Stewart Island.

It is relevant to mention that up until the late 1940s or early 1950s some 300 beds were available in the hotel and boardinghouses. At the present time there are some 87 beds between the hotel and one private hotel. Between them the annual occupancy is approximately 11,000 bed nights. However, although the number of hotel beds available has declined, other accommodation is available at holiday homes and private houses. Occupancy returns are not available for the private hotel, although the proprietor has given the figure of 7,000 for the year ending March 1972, nor are there any means of ascertaining quickly, approximate usage of private accommodation. Occupancy at the South Seas, formerly New Oban Hotel, over the past 7 years is as follows:

	No.
1964–65	.. 1,862
1965–66	.. 2,329
1966–67	.. 1,592
1967–68	.. 2,017
1968–69	.. 3,016
1969–70	.. 3,280
1970–71	.. 3,975

It would appear that up until 1967 there was little consistency in the degree of use of accommodation, but after 1967 and (coincidentally) after the review of this hotel by the Licensing Control Commission, and not forgetting the special efforts which were made by the present owner of the hotel, patronage showed a steady increase. In fact, in the 3 years from March 1968 to March 1971 the demand for accommodation increased by nearly 100 percent.

The survey team has been unable to find reasons for this increased influx to Stewart Island other than that the standard of accommodation at both the licensed and private hotels has improved. It could be that this is a clear indication of a possible diversification of the island economy. A new motel block has recently been completed and it will be interesting to see what demand this generates.

Stewart Island, because of its natural charms, will always attract the outdoor type of adventurer. In our opinion, unless superior accommodation is provided, the island's tourist potential will never be great. Because of the immense capital outlay and the lack of ancillary facilities such as a golf course, swimming pool, etc., it is difficult to see any entreprenuer being attracted to providing the type of accommodation needed to give the tourist potential of the

island a much needed boost. It would seem, then, in our view, that any increase in tourist potential and facilities should in the first instance be aimed at the tourist, who is a day tripper, or those on short stopovers.

Some of the residents of the island expressed the view to the survey team that the certain "old world charm" of the island is a feature which many tourists have remarked on and that this sort of feature should not be despoiled in any way. Whatever these tourists meant by these words and perhaps they were being diplomatic, it is thought that much could be done at Halfmoon Bay, in particular, to improve the image of the island by tidying up the waterfront area. Whilst the island looks most impressive at a distance when approached by air or sea, this impression is soon lost when one steps ashore at Halfmoon Bay. Rusty machinery lying alongside the wharf and around the roads, black smoke-polluted landscape, broken bench seats along the foreshore, potholes and often muddy roads, no provision for a walking footpath around the waterfront—all must have an adverse effect on the tourist as a first impression when he walks ashore at Halfmoon Bay.

For day trippers on the ferry there are few facilities available to enable them to fill in the $3\frac{3}{4}$ hours before they board for the return trip to Bluff. It appeared significant to us that there is no information centre at or near the wharf that is available to tourists to direct or inform them as to what facilities or attractions are available

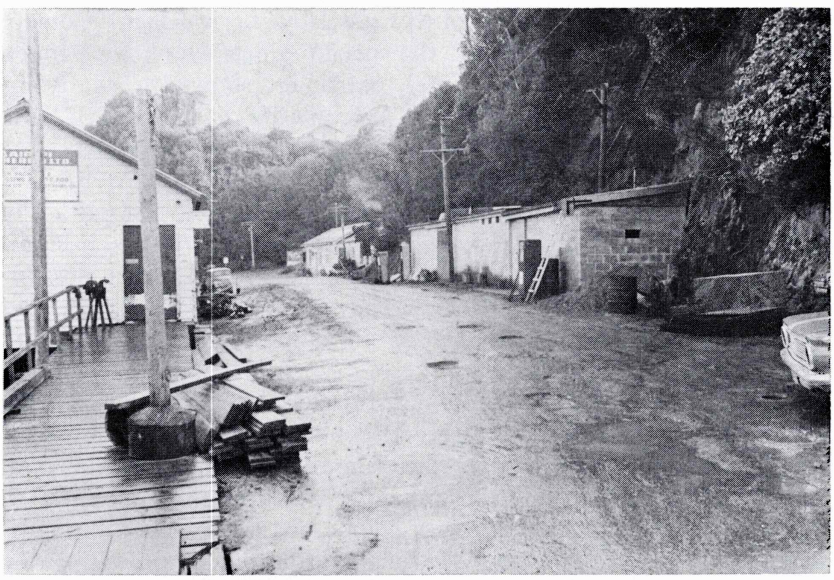


Figure 3. View from wharf at Halfmoon Bay.

Figure 4. Looking towards wharf.

during their short stay on the island. Other than the hotels, there is nowhere available for tourists to obtain a casual meal before returning to Bluff. It would seem that there is opportunity here for someone to open a restaurant, even if only on a modest scale, which could feature the many different seafoods for which Stewart Island is noted.

Present facilities available to the tourist include minibus tours, launch trips, and the museum. Whilst we have already mentioned that the majority of Stewart Islanders seem not interested in tourism, it is our opinion, based on past experience, that there will be a continuing increase in the number of tourists over the next few years. If the proposed promotion campaign on the ferry service is promulgated and successful, particularly in the off season, then the extra tourists should provide the necessary impetus for either local residents or outside interests to provide amenities such as improved eating facilities and other interesting attractions.

It may seem we are overcritical of the lack of interest taken in general by the Stewart Island community in providing for the needs of the tourist, but we are endeavouring to make the point that increased tourist activities will assist the whole economy of the island, as any increase in tourist traffic on the *Wairua* can be of benefit to the local residents in that greater utilisation of the present service could tend to hold freight and passenger costs.

Our views on increased tourism and tourist facilities may well be one that we are appearing to emphasise to the Stewart Island community and will probably not meet with general approval by them. We have no firm recommendation to make on the subject of tourism other than to suggest that as a community Stewart Island looks at ways to diversify its economy, and it is our view that encouraging tourism is one tangible way that such diversification could be achieved.

Sewage

All sewage disposal is at present by means of holding tanks or by direct discharge into the sea. This has caused a severe pollution problem in Halfmoon Bay and the county council has accepted that the provision of a sewage disposal plant as its top priority. Plans are now being prepared and investigations being conducted to produce a sewage reticulation scheme which can be provided within the limits of the county's financial resources.

Electricity

All electricity generation is by private plants. Nearly every house has its own small generator run mainly on diesel fuel. The fish processing plants and the hotel and private hotel, of course, have larger capacity generators. A plan to provide a large centrally situated oil-fired generator to provide public power is only a possibility at present. Many residents who have invested heavily in generators, cooking stoves, central heating, etc., all powered by the same fuel, would be reluctant to have to discard this equipment investment should a public power system be introduced.

STEWART ISLAND TRANSPORT SURVEY: TERMS OF REFERENCE

1. (a) *Scope:* To record—

(i) existing South Island to Stewart Island transport facilities and economics;

(ii) to discuss and forecast future requirements.

(b) *Existing Services.* Summarise extent, nature and costs of existing—

(i) sea services;

(ii) air services;

(iii) road services supporting the harbour.

Indicate in broad terms the suitability of the present transport arrangements for current needs.

(c) *Future Requirements.* Discuss future freight and transport requirements in the light of possible changing activity, e.g.;

(i) increase or decline in the fishing industry;

(ii) possible increase in tourist activity;

(iii) demand for holiday homes;

(iv) demand for retirement homes.

Discuss influence of adequacy and costs of transport on the possible future of the above-mentioned activities on the island.

2. *Specific Items for Study*

(a) *Air*

(i) Discuss relative operational merits of land and amphibious aircraft.

(ii) Indicate what weight should be given to the ability of amphibious aircraft to service the whole Stewart Island and the Fiordland coast as well as the Halfmoon Bay run.

(iii) Compare operating costs of replacement amphibious aircraft and supporting facilities, e.g., road access, beacons, staff, etc.

(iv) Comment on feasibility of freight carriage by land aircraft and explore the possibility of handling all passenger traffic by air.

(b) *Sea*

(i) Explore possibility of better utilisation of ferry vessel, e.g., 1 or 2 day tourist cruises.

(ii) Comment on suitability of *Wairua* for service and other types of vessel available as possible replacement.

(iii) Comment on demands on *Wairua* for Marine Department and other services.

(iv) Comment on feasibility of the use of coastal shipping only say, once a month for heavy freight in event of all passengers and light freight being carried by air.

(c) *Economics*

(i) Survey profitability of present services. Report on the possible extent of the subsidies required to maintain an effective service and relate this to present and prospective tax yields from Stewart Island.

(ii) Study the importance of modern efficient transport services to the maintenance and development of the fishing and tourist industries.

(iii) Study the possible loss in capital investment on Stewart Island should the present community decay economically and numerically through an inadequate and /or costly transport service.

3. *Recommendations:* Should include all relevant items.

2. SEA TRANSPORT: BLUFF - STEWART ISLAND FERRY SERVICE

History

The first regular steamer service commenced on 1 July 1885. Always financially unprofitable, it has been subsidised by the Government from the outset. The first subsidies were paid under a 2-year contract between the Postal Department and the Southland Harbour Board to ensure a weekly mail service.

Until 1930, with the exception of a brief period from 1890 to 1891, when the service was operated by private concerns, the link with Stewart Island was maintained exclusively by successive Southland Harbour Board tugs. In 1930 private enterprise again took over. The service had been a weekly one, with sailings twice weekly between mid December and the end of February, but an increased subsidy in 1936 saw a service increased to three sailings per week. This step, which was taken to counter competition from fishing launches and other vessels, resulted in a substantial increase in passengers and cargo carried. In 1942 the ferry vessel *Tamatea* was requisitioned for war service and it was not until the *Wairua* was purchased from the Navy by the Marine Department and commenced service in December, that a satisfactory service was restored.

The *Wairua*, which had previously provided a passenger and cargo service between Helensville and Dargaville, was extensively refitted in 1947 and this generated more traffic to the island. The *Wairua* completed 14 years on the run and was replaced as a stopgap measure by the *Matai* which had been extensively used as a cable layer in the 1950s. The *Matai* was a much larger vessel with higher operating costs and so fares and freight rates were increased to offset this. In 1961 the *Matai* was withdrawn and replaced by the new *Wairua* which was built especially for this service.

Since the Marine Department has operated the service, the vessels have been extensively involved in lighthouse servicing and the transport of Rakiura Maoris to the Muttonbird Islands each season (until the 1972 season).

In fact, the present *Wairua* was designed to fulfil three functions:

1. To operate a passenger and cargo service between Bluff and Stewart Island.
2. To carry up to 100 persons travelling to the Muttonbird Islands each year.
3. To service lighthouses in Foveaux Strait and Puysegur Point.

Earlier vessels have exceeded *Wairua's* freight and passenger capacity and the tug *Theresa Ward,* which operated the service between 1900 and 1927, completed the Bluff - Stewart Island round trip in the same time. In the 10 years of operation since the *Wairua* first came into service, it has established a record of dependability. Considerable efforts have been made to accommodate the increasing tourist traffic by adjusting the timetable, establishing a passenger booking system, and in making extra sailings when demand warrants. The *Wairua's* remaining life has been estimated at 20 years, however, a more accurate economic assessment has put the life between 10 and 15 years if excessive maintenance costs, which will tend to increase each year, might be avoided.

Capabilities of G.m.v. *Wairua*

The *Wairua* is licensed to carry 287 unberthed passengers and is considered to be well equipped with safety devices. There is also berthed accommodation for nine passengers but this is usually only used when transporting staff or maintenance teams to lighthouses. A feature of the vessel is the retractable stabilisers, installed specifically for passenger comfort. The *Wairua* which, as mentioned previously, has a passenger speed of 11 knots, completes the 22-mile trip from Bluff to Oban in Halfmoon Bay, Stewart Island, in approximately 2 hours.

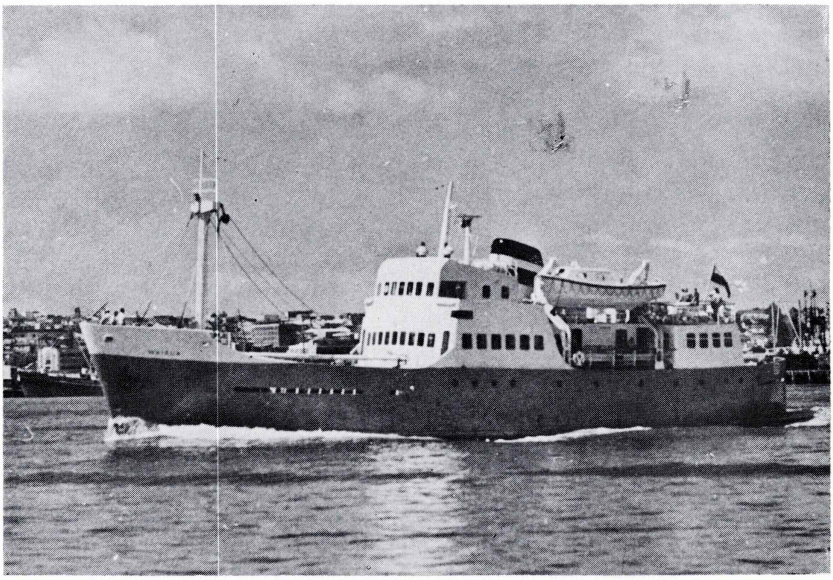


Figure 5. G.m.v. Wairua.

Ferry Timetable

From Easter until early December each year there are two sailings per week. For the remainder of the year, three sailings per week are made with additional sailings during December-January, February, at Easter, Queen's Birthday, and Labour Weekend. Two sailings per day are made when demand warrants. The 1972–73 timetable is produced as appendix III.

Foveaux Strait is well known for its rough weather. In the past 10 years, scheduled sailings have been cancelled on only three occasions, all on account of weather conditions. Bookings can be made at the Marine Department, Bluff, or through travel agencies. An Invercargill-based bus operator provides a service which connects with all sailings of the vessel. The *Wairua* is also available for day trip charters.

Apart from the scheduled ferry service, the only other function of the *Wairua* is the lighthouse servicing programme, now that the requirement to convey people to the Muttonbird Islands has been terminated. This is carried out mainly during the off season and does not affect the vessel's ability to cope with traffic at peak periods.

The present utilisation of the vessel is described below:

SCHEDULED SAILING ROUTINE:

7 a.m. . .	load perishable cargo
8 a.m. . .	depart from Bluff
10 a.m. . .	arrive Halfmoon Bay
1.45 p.m. . .	depart from Halfmoon Bay
3.45 p.m. . .	arrive Bluff

On arrival at Bluff it is usual for frozen fish cargo to be removed before 5 p.m. and, as time permits, all other cargo is also removed.

Loading of the vessel commences at 6 a.m. if the vessel sailed the previous day or if the previous day was a Sunday.

SUMMER TIMETABLE:

			a.m.	p.m.
Early December until Easter	Monday	6 a.m.	load ferry	sailing
	Tuesday	. .	free	load
	Wednesday	. .	ferry	sailing
	Thursday	. .	free	load
	Friday	. .	ferry	sailing

Daily sailings are made during the period 26 December to 19 January (inclusive). Outside this period, Tuesday and Thursday

mornings are available for exterior maintenance or for servicing the lighthouses.

WINTER TIMETABLE:

	a.m.	p.m.
Monday	free	load
Tuesday	Ferry sailing	
Wednesday	free	
Thursday	free	load
Friday	Ferry sailing	

Additional sailings are made at Queen's Birthday Weekend (2) and Labour Weekend (2).

The annual survey is carried out during November (this normally requires one week at Port Chalmers). The survey time is minimised by the continuing maintenance carried out during the "free" time indicated in the timetables above. A major problem in this regard is said to be the Lister generators. This equipment requires overhaul more frequently than was anticipated at the time of construction of the vessel. The overhaul time for these generators is said to require three times the amount of time that was anticipated when the vessel was built. Weather conditions prevailing at Bluff can also hamper the external maintenance programme.

During the absence of the *Wairua* on annual survey, it has been the practice to hire the Southland Harbour Board tug in order to maintain the ferry schedule. In the near future, the existing tug will be withdrawn from service and the Marine Department has been advised that the new tug will not be available for this work. Positioning of another vessel to carry out this function is presently being explored.

Passenger Service

The vessel is operated close to the maximum number of sailings that can be undertaken by one crew during the holiday season. There is considerable unused passenger accommodation on scheduled sailings throughout most of the year, but this is chiefly during the off season. During peak holiday periods, all the passengers seeking accommodation on the vessel cannot be carried. The position is summarised on the following table which indicates the number of passengers carried per trip for the 314 trips (i.e., 157 return) made during the year ended 31 March 1970:

Table 2

NUMBER OF PASSENGERS CARRIED ON *WAIRUA*

	Total Trips	Less Than 50	51–100	101–150	151–200	201–250	More Than 250
April 1969	30	11	10	3	5	..	1
May	16	7	4	3	1	..	1
June	20	13	5	2	..	..	..
July	18	18	..	..	..	..	..
August	18	12	2	4	..	..	..
September	18	11	4	..	2	1	..
October	24	15	5	2	..	2	..
November	16	8	6	2	..	..	..
December	36	10	17	2	4	3	..
January 1970 ..	50	..	7	15	14	9	5
February	34	4	4	18	8	..	..
March	34	9	10	7	4	1	3
	314	118	74	58	38	16	10
Percentage of total trips ..		38%	24%	18%	12%	5%	3%

Although time could be made available for further use of the vessel during the off season, there appeared to be no suitable alternative employment. Overnight cruises are not practicable because of the nature of the passenger accommodation. A large passenger complement would be required to make any cruise a profitable undertaking. The vessel is not constructed in such a way that would permit use of the various passenger lounges as bunk-rooms or sleeping accommodation and, in any event, there would be insufficient toilet and cooking facilities to cater for the number of people that would be required to travel on the vessel to make it economically viable.

It is suggested that a regular and dependable service is provided by the *Wairua* for Stewart Island residents. However, some residents have voiced the complaint that from their point of view the service is inconvenient and costly, because it is impossible to travel to Bluff and return on the same day by ferry. For persons wishing to travel to the South Island from Stewart Island, it necessarily involves accommodation costs, for 2 nights at least, plus time spent waiting for the return sailing.

Reliable statistics concerning travel on the *Wairua* by residents are not available, but information extracted from ticket sales for the year ended 31 March 1970 may serve as a guide. During this

period 48 percent of all tickets sold (representing 38 percent of the total income from fares) were for 1-day excursions, and less than 10 percent of the value of all income from fares was received in respect of tickets (including return tickets) sold for the Stewart Island - Bluff trip.

The provision of extra services or alterations to existing services, which would of course involve extra cost, for the benefit of residents of Stewart Island are difficult to justify, having regard to the population (410) and evidence of little use by residents of the island of existing services. Air transport is available when urgency is required, and although the cost of an air trip between Stewart Island and Invercargill is considerably higher than that on the *Wairua*, it must be remembered that residents can leave Stewart Island first thing in the morning, having virtually a full day's shopping in Invercargill, and then return to Stewart Island on the evening service thus avoiding the high costs of accommodation and other costs involved in transport between Bluff and Invercargill. It is the view of the survey team that some of the passenger accommodation on the *Wairua* is of a good standard, but in our opinion the accommodation in the aft lower lounges, although clean and tidy, is depressing. Interior accommodation comprises an observation lounge adjacent to the bridge with seating for 50 persons, a coffee lounge for 55 persons, a main deck lounge for 45 persons, and a second lounge for 40 persons with an adjacent ladies lounge for 15 persons. There is also some deck space. However, it should be pointed out that the three lounges at the aft end of the vessel are configurated one above the other and comprise three different levels with communicating stairs in the centre of the vessel. The very small space in these lounges, with seating of a bench type, located round the extremities, and with limited observation outside the vessel would tend to make them uninviting. It is thought, too, that with large numbers of people aboard and it is considered by the survey team, anything in excess of 150 people, mostly unknown to one another, would make full utilisation of the 200 or so seats practically impossible.

In pleasant sea conditions the accommodation in the aft lounges, particularly during the busy period, could tend to become cramped and overcrowded. However, the notoriously bad Foveaux Strait weather can make the conditions in these same lounges most unpleasant. Even in good weather, the coffee bar cannot be operated conveniently when passenger complement exceeds 200 persons because of limited space. In rough weather, when people experience seasickness, the crossing can be distressing not only for those who suffer, but also for those who have to suffer those who suffer.

Figure 6. The coffee lounge.

Figure 7. The observation lounge.

Terminal Facilities

It is the view of the survey team that the terminal facilities provided both at Bluff and at Stewart Island are not adequate.

At Bluff, a single-storey building is provided, which houses a ticket office, a small waiting room plus toilet facilities, and an area set aside for the storage of ships stores and other equipment. The waiting room is very small and is entirely inadequate to house other than people waiting to purchase tickets. However, it must be remembered that the bulk of people sailing on the vessel arrive by coach from Invercargill and embark directly on to the vessel shortly after arrival. At Halfmoon Bay there is a very small passenger waiting room located on the wharf which is, at present, in a very bad state of repair. Separate toilet facilities are provided but the appearance of the waiting room, in the view of the survey team, is such that the use of it is not invited. Again, it must be remembered that when these were provided in earlier days there was not the same through-put of passengers as there is in the year 1972 when an estimated 32,000 people travelled on the *Wairua*. Admittedly, people travelling to the island on day trips tend to stream off the vessel into the central part of Oban township and probably have little need of the use of terminal facilities. However, in bad weather, and when preparing to leave from Halfmoon Bay, there is a total lack of available covered space for passengers to shelter whilst waiting to embark on the ship.

For passengers disembarking at Bluff after the vessel's arrival from Stewart Island, there is no covered accommodation available whatsoever for passengers and, in fact, the terminal facilities cannot be used unless they are unlocked by Marine Department staff, which is not usual.

The provision of adequate terminal facilities both at Stewart Island and Bluff would, of course, involve substantial alterations or, alternatively, new buildings at both locations and this would obviously involve substantially greater costs that would have to be absorbed by the people who use the ferry service. It is the view of the survey team that to make the service more attractive it would be necessary to provide better facilities. It is thought that with what is mentioned in later parts of this report an improvement in these facilities could ultimately lead to a more attractive service and a greater utilisation of the *Wairua*.

Promotion of Ferry Service

As already mentioned, the survey team is of the opinion that the only possible diversification of the economy of Stewart Island would

be in the field of tourism. There are perhaps two principal ways that tourism could be encouraged in Stewart Island and these are by—

1. advertising or promoting the attractions of Stewart Island itself on a nationwide basis.
2. promotion of the ferry service to encourage tourists to visit the island.

Some years ago the Marine Department extensively advertised the ferry service to Stewart Island. Immediately following this promotion campaign it has been said that the results of this brought such a large number of would-be travellers forward that the administration of the vessel was embarrassed into quickly curtailing the advertising campaign. It has been said that this was partly due to the cumbersome booking system prevailing at that time. It is considered that the now modified booking system is sufficiently flexible for the promotion of the service to be reintroduced. It is the view of the survey team that full-scale promotion of the ferry service should begin as soon as practicable with particular emphasis being paid to off-peak out-of-season travel.

It is suggested that if such a campaign was successful, and although it is possible that the ferry service might not be able to cope with the large numbers of people that may come forward, this would provide a clear indication to the Marine Department of the potential for this service and also, it is suggested, give some further indication to the people of Stewart Island as to the tourist potential that Stewart Island may have.

Freight Service

In the main, the freight service has involved the supply of foodstuffs and fuel to Stewart Island on one hand and export of fish on the other. Other items include motor vehicles, building materials, small boats, livestock, etc.

Cargo space requirements in excess of half a ton or 20 cu ft for outward movement to Stewart Island or for that matter on the return journey, must be booked so that loading can be planned in advance. This arrangement is necessary because of the absence of cargo storage and control facilities at Bluff and at Stewart Island. Delivery of cargo to the dock is arranged so that cargo can be transferred from the road transport direct to the ship's hold. All loading is carried out by the crew of the *Wairua*.

Cargo is accepted between 1.30 p.m. and 4 p.m. on the day prior to sailing, with perishable items being accepted after 7 a.m. on the day of sailing. Cargo is accepted earlier on sailing days when

Wairua is operating a busy schedule. At these times (Christmas to the end of January and Easter) only limited amounts of cargo can be carried because there is insufficient time for loading.

The service is able to carry all the cargo offered except at peak periods when all the cars and small boats offered for transport cannot be carried on the ferry. Caravans are no longer accepted because the vessel's lifting equipment is not appropriate and there is a considerable risk of damage. Although freight booking may be inconvenient for carriers in some cases there are virtually no alternatives in view of the wharf facilities provided at Bluff and Halfmoon Bay. Should freight volume increase significantly, the vessel will be unable to cope during the summer on the present timetable, principally because of the limited facilities at Halfmoon Bay.

The wharf at Halfmoon Bay has three distinct sections: the seaward and landward ends, which are open decks, and a roofed centre section with the decking raised approximately 4 ft above the other levels on the wharf to provide a trucking dock. In order to achieve a satisfactory turn-round and because the crew is unable to provide a sufficiently large loading gang, cargo is stowed in slings, thus reducing the vessel's carrying capacity by an estimated 40 percent.

On docking at Halfmoon Bay, any vehicles or boats are unloaded on to the open deck at the seaward end of the wharf. The vessel is moved to the centre section where general cargo is unloaded, not without some difficulty, because of the comparatively low overhang of the roof. Often the carriers, who are normally waiting at the wharf ready to disperse cargo, are unable to clear the wharf of unloaded cargo quickly enough so that further unloading may continue. If coal or shingle is carried on the vessel, it is necessary to move the vessel back to the seaward end of the wharf so that these items can be transferred direct to the trucks. The vessel is then moved to the landward end to take on fish, then back to the seaward end to get motor vehicles or boats if they are to be carried back to Bluff.

Documentation

All cargo is shipped under cover of a consignment note but only general oversight is given to the release of cargo to Halfmoon Bay consignees. More precise control is not possible unless improved cargo handling facilities are installed at Halfmoon Bay and assistance is provided for the Marine Department's clerk wharfinger during the period the ship is turned round. However, cases of lost cargo are rare and the existing situation enables the Stewart Island community to collect consignments promptly.

While the freight service is thought by some to be operating without major problems, it is probably best described as makeshift. There are aspects of the present situation, some of which have already been mentioned by a number of people and another now discussed, which should be explored.

The system of delivery and loading that operates at the terminal facilities at Bluff has already been mentioned. Complaints that have been made to the survey team regarding the freight service, relate almost exclusively to the lack of storage facilities at Bluff. As already mentioned, consignors bringing freight or cargo to the dock at Bluff either themselves or through a carrier are required to deliver between 1.30 and 4 p.m. Although items in excess of half a ton (or 20 cu ft) are required to be notified to the Marine Department before this time, it is thought that the provision of storage facilities at Bluff would provide a much better service to carriers and at the same time would improve cargo handling techniques.

In discussions that the survey team had with the Southland Harbour Board representative it appeared that there are a number of factors which would inhibit the development of a new terminal for the ferry service at the existing wharf location. The building presently provided, which serves to provide the terminal facilities, has very limited space and probably it would not be an economic matter to develop this to the standard required of a modern terminal facility for a service such as the one operated to Stewart Island.

The Southland Harbour Board has indicated that it is considering resiting the *Wairua's* berth. It is suggested that the Southland Harbour Board should be asked to designate a permanent berth for the *Wairua* preferably on the "island" at Bluff. A suitable terminal should then be constructed to service the ferry. The survey team consider that the terminal facilities should provide, in addition to office space for Marine Department staff at Bluff as administrators of the ferry service, ample waiting room and storage facilities and secure cargo holding facilities.

With regard to the wharf facilities at Halfmoon Bay, it is considered that the present wharf arrangements, because they necessitate the constant movement of the vessel up and down the wharf for loading purposes, contribute to the increased turn-round time of the ferry whilst it is at Halfmoon Bay. It is suggested that the open area of the truck dock alongside the berth be increased by removing part of the roof and walls. This would make it possible for cargo to be landed either on the raised deck or the open end of the wharf from the same berth, at least for the operation of this particular vessel.

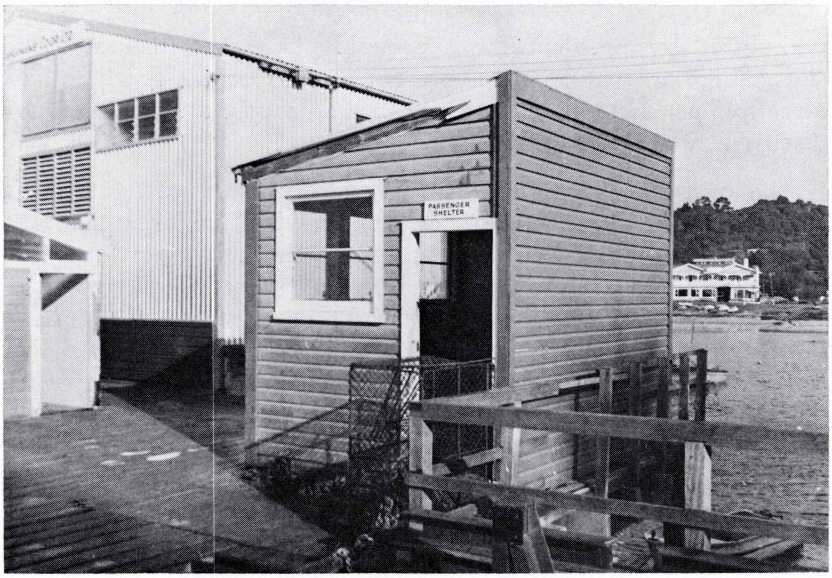


Figure 8. Passenger shelter at Halfmoon Bay.

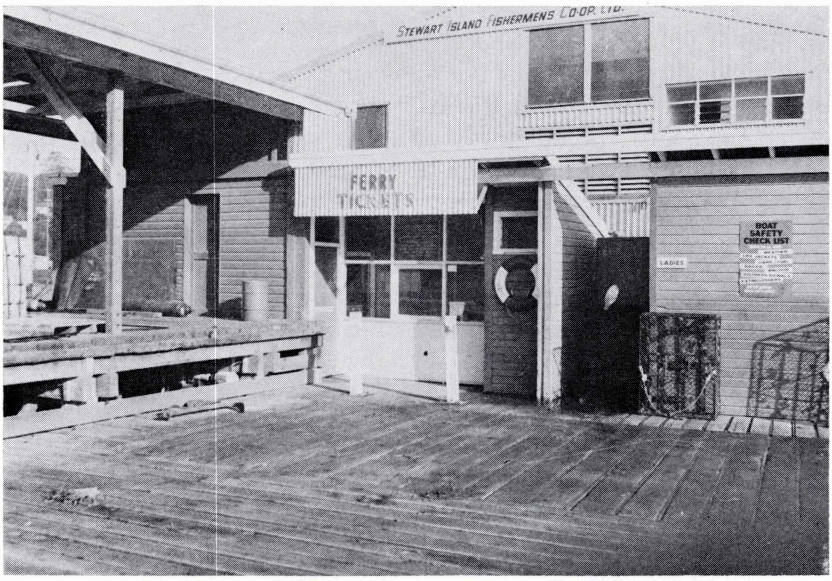


Figure 9. Ticket office, public toilets, and truck dock—Halfmoon Bay.

Figure 10. End view of truck dock—Halfmoon Bay.

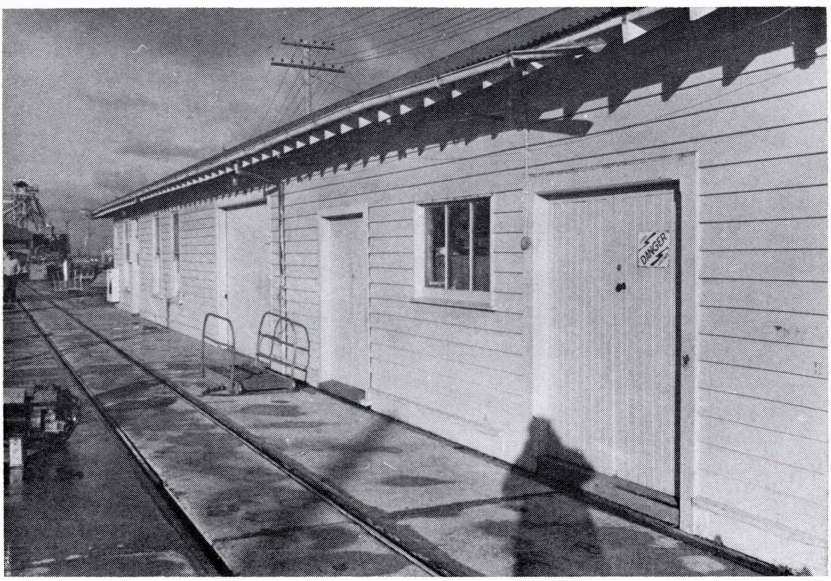


Figure 11. Wharf building at Bluff.

The Fishing Industry

Present Stewart Island commercial activity is based on fishing and fish packing, tourist accommodation and services, and house construction: residential, holiday, and retirement. It has been said that if prudent fishing methods are used, it appears that stocks will support the existing industry for many years to come, and a decline is unlikely. Details of Stewart Island landings of fish for recent years are shown below:

Table 3

FISH LANDINGS

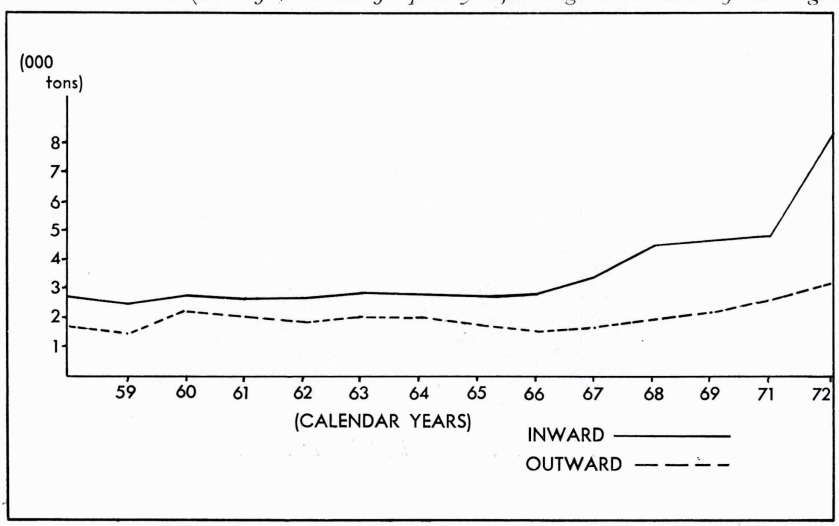
Year Ending 31 December	Paua		Wet Fish		Rock Lobster	
	lb	$	lb	$	lb	$
1967 ..	12,483	1,374	595,480	59,055	277,332	260,006
1969 ..	11,168	871	347,078	47,450	231,737	409,749
1971 ..	377,809	90,238	207,276	26,975	308,213	909,753

Rock lobster is by far the most valuable catch, but significant increases in landings are not expected for reasons explained below. Export prices for rock lobster have been substantial for some time and while this situation continues it is expected that little attention will be given to other varieties. The *Wairua* will be able to carry substantial increases in fish exports as evidenced on the table and graph shown below which indicates that northbound cargoes are approximately half the level of southern traffic.

Table 4

CARGO HANDLED: HALFMOON BAY

Quantities are expressed in manifest tons which are not necessarily tons of 2,240 lb. Measurement tons (40 cu ft) are used frequently depending on the nature of the cargo.



Rock Lobster Stocks

The reports of the Fishing Industry Committee (1970–71) (2. Rock Lobsters) includes comment on the record of landings at Bluff and Stewart Island 1948–69. These ports handle the bulk of the catch from what has been described as the south-western fishery. Results are shown on a graph which includes the totals for 1970 and 1971 taken from the annual reports of the Marine Department.

"It will be seen by references to the figures that landings rose sharply over, say, 7 years from less than 4,000 cwt in 1949 to a decline over 5 years to some 27,000 cwt in 1961. Since then the landings have moved between 24,000 cwt and 35,000 cwt. These figures of landings take no account of the varying fishing effort applied to this fishery, but still reveal what is known to be the classical pattern of the catch during the first utilisation of a previously virgin fishery, that is an increase of landings to a peak, a fall-off therefrom and a stabilising of the landings from the fishery to provide a continuing yield of between one-half and two-thirds of the peak landings."

Export Prices

Most of the catch is exported. Average export values f.o.b. per cwt were:

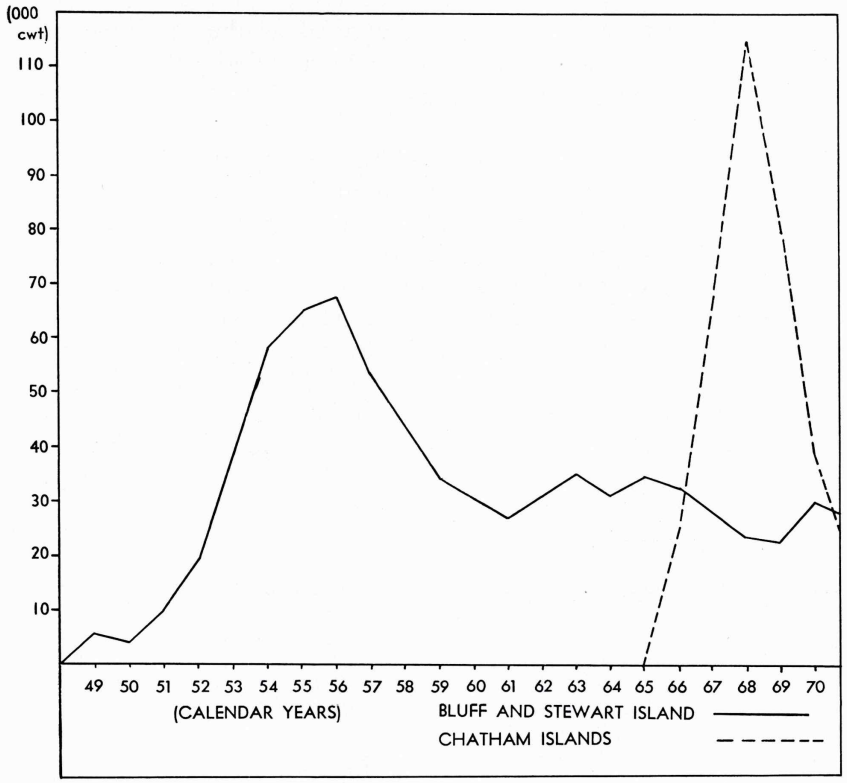
		$
"1945	..	9.60
1950	..	33.80
1955	..	61.40
1965	..	139.80
1968	..	204.47
1969	..	244.77

The increase from 1968 to 1969 was achieved in spite of a downturn in price during part of that year in the United States, which is the principal market. In general terms it can be said that the average unit f.o.b. value doubled between 1950 and 1960 and increased three and a half fold between 1960 and 1969. This last-mentioned movement included what amounted almost to a doubling between 1967 and 1969."

There has been an increase in home building in recent years and it is considered that one of the causes of this is due to the rising prices for rock lobster and this has had some influence in this area. The substantial rise in inward cargo during 1971 is thought to be largely the result of building activity. Projects are usually undertaken by one or two tradesmen who arrange for delivery of materials as and when they are required on the site. In this way the shipments on

Table 5

LANDINGS OF ROCK LOBSTER: BLUFF, STEWART ISLAND, AND CHATHAM ISLANDS



the *Wairua* are spread over several weeks. Increase in this activity is not anticipated as the present level represents a significant change. However, the *Wairua* has capacity for much more cargo than it carries at the present time.

It has been explained previously that because of the need to stow cargo in slings, approximately 40 percent of the capacity is lost. Sixty percent of capacity is 6,480 cu ft which converts to 162 measurement tons. On the basis that the vessel makes 157 return trips per year (total for 1970), the annual capacity is 25,434 measurement tons for the southbound journey. Southbound cargo for 1971 totalled 8,201 manifest tons. However, this statement is qualified by the following factors:

(a) Manifest tons are not a fixed measure.

(b) The annual total of cargo carried for 1971 does not include passengers' baggage which can occupy large areas of the hold during the holiday seasons.

(c) Only small quantities of cargo are carried in the peak holiday season because there is insufficient time for loading when the vessel is perhaps sailing on a daily schedule.

Better use of the cargo capacity of the vessel could be made if cargo handling techniques were improved (reduction of the 40 percent waste space). In addition, extra sailings could be made during the off season. This would be a reasonable proposal if a high level of building was to be maintained, enabling requirements to be planned well in advance. With the exception of freight rates for fish and vehicles the schedule is similar to that of the Wellington-Picton ferry which can be taken as an indication of market rates. A comparison is given in the following table.

Table 6

COMPARISON OF CHARGES

	Bluff - Stewart Island	Wellington–Picton
	$	$
Passenger Fares:		
Single adult	3.00	3.00
Single child	1.50	1.20
Excursion adult	4.00	3.75 (1)
Excursion child	2.00	1.55
Freight:		
General cargo (per cu ton) (including wharfage)	8.48	8.20 (2)
Motor vehicles:		
Car (up to 13 ft 3 in.)	13.40	10.20
Car (13 ft 3 in. to 15 ft)	18.40	14.00

NOTES:

(1) Concessions for group travel, family stopover, pensioners, etc., are not available on the Wellington–Picton service. See page 41.

(2) Wellington–Picton rates for smaller quantities are more expensive (e.g., 1 cwt or 2 cu ft: $0.63, i.e., rate per ton $12.60).

Rates for fish on the Bluff - Stewart Island service are:

	(= per ton 2,240 lb)
	$
Rock lobsters (per 50 lb case) $0.42	13.816
Wet fish and paua (per 50 lb case) $0.64	28.672

Higher rates are associated with the fact that fishing is the major commercial activity which supports the island community and it

therefore creates the need for a ferry service. No reason for a lower rate on the much more valuable rock lobster is known. It is suggested that these rates be standardised having regard to traffic volumes. Most wet fish and paua is caught by rock lobstermen during the off season. The pattern of landings is shown by the graph below which traces the results for 1967, 1969, and 1971.

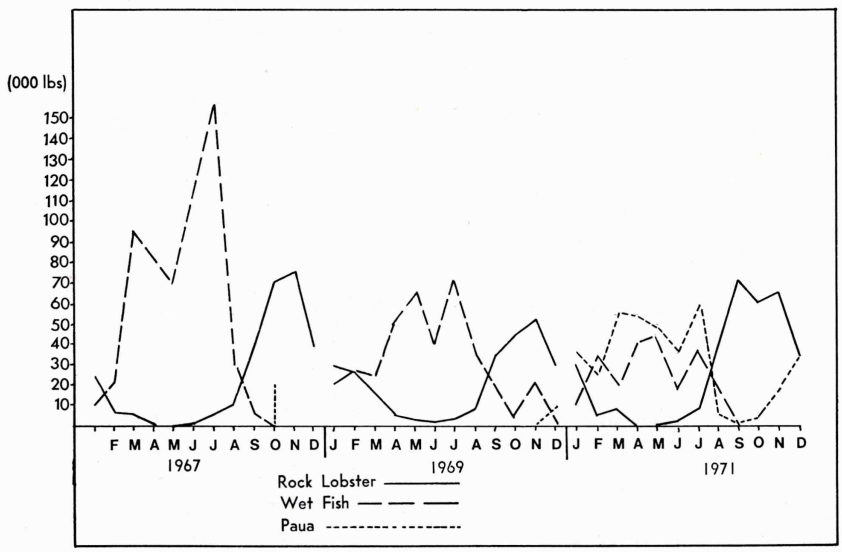
Total landings for the three years mentioned are:

	tons
Rock lobster	365
Wet fish and paua	644
	1,009

At current rates, total freight income on this quantity would be $25,332.61. The standard rate to produce the same level of freight income from fish is $25.107 per ton (56c per 50lb case or carton). Adoption of this standard rate would involve a 33.3 percent increase in the rate for rock lobster and a 12.5 percent decrease in the rate for wet fish and paua.

Table 7

LANDINGS AT STEWART ISLAND



While freight rates for fish are high, their impact on the total value of the Stewart Island catch is small. The freight charge for the total catch *landed* on Stewart Island during 1971 would be:

			$
Rock lobster ..	..	137.6 tons at $18.816	= 2,589
Wet fish ..	..	92.5 tons at $28.672	= 2,652
Paua ..	..	168.7 tons at $28.672	= 4,837
			$10,078

The value of this catch was $1,026,966.

Higher rates (over the Wellington-Picton service) for motor vehicles are justified in that this cargo requires handling on the Bluff - Stewart Island service.

Reasonable freight charges are expected and allowed for in any industry. It is submitted that with the exception of the rates for fish, charges are comparable with other New Zealand services and that there is no reasonable case for any lowering of present freight charges.

Lighthouse Service

Wairua carries heavy freight to the three manned light stations at Dog Island, Centre Island, and Puysegur Point. The 1972 trip schedule is produced below.

Table 8

1972	Centre Island	Dog Island	Puysegur Point
January	..	..	..
February	..	..	25
March	2	9	..
April	27	..	11
May	29	8	..
June	..	..	20
July	17	..	..
August	28	21	8
September	..	..	29
October	13	16	..
November	..	..	28
December	..	5	..
Number of visits	6	5	6

NOTE: To illustrate the spread of trips, the above table shows the day of the month on which each trip was undertaken.

When unloading at the islands, supplies must be landed by surfboat and the schedule is compiled to fit in with the ferry timetable and to take advantage of suitable tides. Not infrequently, weather conditions prevent landings and visits must be rescheduled. Light aircraft are hired to carry personnel and light stores and mail. An assessment is made to calculate the fee for the use of the *Wairua* and this is discussed on page 48.

The use of a smaller vessel providing more frequent and regular visits is considered to have advantages over the existing vessel. The possibility of providing a new vessel for the lighthouse service has been considered by the Marine Department and decision deferred meantime.

Alternative Transport Service

The terms of reference for the survey team require that the team comment on the feasibility of using coastal shipping only say, once a month for heavy freight in the event of all passengers and light freight being carried by air. Air transport feasibility is discussed elsewhere.

The use of coastal shipping is not recommended for the following reasons:

(a) Although the Northern Steam Ship Company operate a service between Onehunga and South Island ports it is understood that they are not interested in diverting the service to Halfmoon Bay.

(b) It would appear that other suitable vessels are not available in the area. A charter would be necessary whenever a shipment was required to Stewart Island. This would, of course, involve charter payments whilst the vessel was steaming to Bluff.

(c) Substantial storage space would be required at Bluff so that the monthly shipment could be assembled and held pending loading.

(d) Improvements would be required to the wharf facilities at Halfmoon Bay in order that the larger shipment could be efficiently handled.

(e) It would be necessary to provide increased fuel storage facilities in order to maintain sufficient stocks on Stewart Island between shipments and including a reserve.

(f) Regular shipments for frozen fish by sea would not be possible and greater quantities would have to be held in Stewart Island freezers. This would appear to be beyond the capacity of the existing freezers and would require a larger capital investment for the companies concerned.

(g) The volume of fish held in store for shipments each month would create a further problem in movement and storage at Halfmoon Bay prior to loading for Bluff in that the frozen goods would be exposed for a much longer period.

(h) Perishables (meat, milk, and vegetables, etc.) in the required quantities cannot be considered as light freight and would therefore have to be carried on the monthly service. It is thought that this would be unacceptable to the residents of Stewart Island.

Financial Results and Subsidies

General

Comments in this section are based on the annual statements of the Bluff - Stewart Island ferry service published in the annual reports of the Marine Department. The first scheduled ferry voyage by the new *Wairua* was made in December 1961 and its first full financial year of operation ended 31 March 1963. When comparing annual results, the fact that Easter falls sometimes in March and sometimes in April should be considered. This is a peak period as far as passenger traffic is concerned and the absence of Easter, or the occurrence of two Easters in a financial year, has a noticeable effect on annual fare income.

The annual total (year ending 31 December) of passengers carried is published in the Marine Department annual report and the total cargo carried each way is supplied (for the same period) by the clerk/wharfinger, Halfmoon Bay, to the Department of Statistics. Both of these items are of some value when considering the financial results of the service. In view of the intention to review the results of the service annually for the purpose of adjusting fares and freight rates, it is recommended that these items be recorded for the year ending 31 March, in future. There is a lack of statistical information concerning the operation of the vessel and a detailed recommendation on this subject is included in the summary.

Description of the Profit and Loss Account

The classification and/or assessment of revenue and expenditure has remained substantially unchanged since 1963. A brief description of the nature of each item is given, except for those which are self-explanatory.

Operating Income:

Fares: Income from the sale of passenger tickets.

Freight: Self-explanatory.

Charters: Fees (passengers and freight). Apart from increases in excursion fares to cover increased Halfmoon Bay passenger tax the first increase in the rates of these three items since 1959 was made from 1 September 1971.

Lighthouse servicing: This assessment is described on page 48.

Coffee bar: Net returns from coffee bar sales.

Operating Expenses:

Salaries and wages: Including salaries, wages, overtime, and allowances of the crew and the salary of the clerk/wharfinger, Halfmoon Bay.

Fuel and stores: Self-explanatory.

Repairs and maintenance: Cost of annual survey, routine maintenance by private tradesmen and spares and equipment used in maintenance by the *Wairua's* crew, but the cost of wages, salaries, and overtime worked on maintenance by the crew is excluded.

Stevedoring: Includes electricity charges for the vessel at the Bluff wharf and payment and victualling for Southland Harbour Board linesmen.

Travel expenses—crew: Chiefly transport costs associated with the annual survey.

Hire of relieving vessel: A relief vessel is used during the *Wairua's* annual survey and the muttonbird season.

Other expenses (Overhead):

Administration expenses: Includes levies by Bluff office and head office and the office charges directly incurred by the vessel. The levies have been altered from time to time. Current rates are: Bluff office—33.3 percent of office staff salaries. Head office—$3,000.

Interest: A charge for interest on capital is computed as $4\frac{1}{2}$ percent of the net assets as at 31 March of the previous year less $2\frac{1}{4}$ percent of the net decrease in assets during the financial year under review. It is noted that a Treasury memorandum dated 17 May 1962 to the Marine Department increased the rate of interest on capital from 4 percent to $4\frac{1}{2}$ percent from 1 April 1962. At that time the rate of return from long-term Government securities was $5\frac{1}{4}$ percent. On 31 March 1972 it was increased to just over $5\frac{1}{2}$ percent and the interest rate charged has not increased. It is thought that the rate of $4\frac{1}{2}$ percent is now unrealistic and should be reviewed annually to decide a rate of return which would more accurately reflect current financial values. It is realised that if the higher interest rate was to be charged on the capital value of the *Wairua,* the annual net loss would be increased but it is considered that in the light of the current yield from Government securities, then an appropriate

increase should be charged for interest on capital. If this interest on capital was to be based on normal market rates, then the amount charged would be greater.

Depreciation: This calculation is in accordance with Treasury Instructions and the depreciation allowance approved from time to time by the Commissioner of Inland Revenue. The approved allowances at present are:

Wairua—Six percent of diminishing value as at 31 March of the previous year.

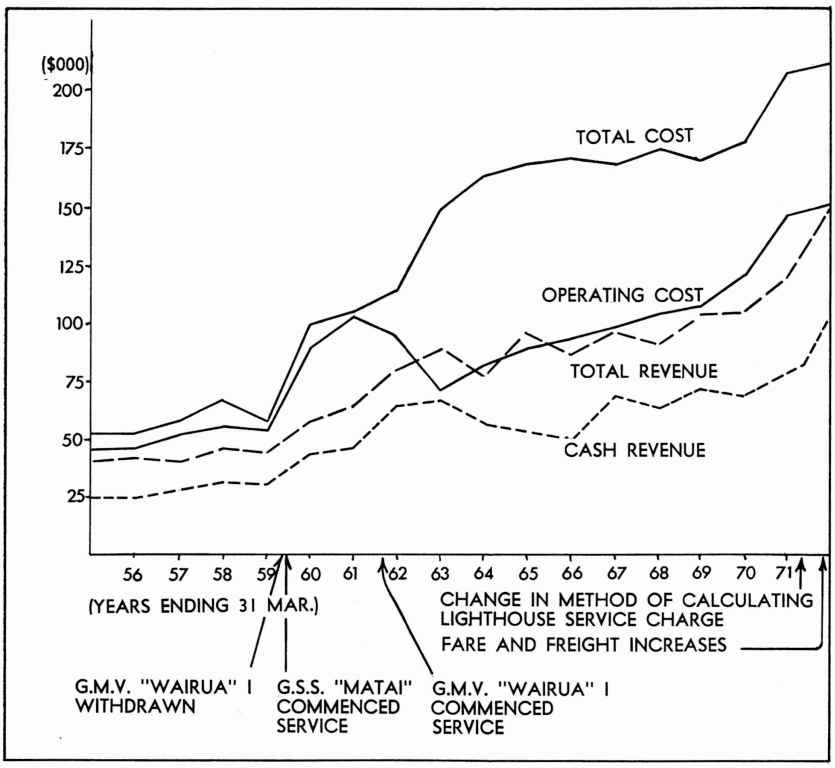
Other equipment—Twenty percent of diminishing value as at 31 March of the previous year.

Audit fee: Levied by the New Zealand Audit Office.

Insurance: As a general policy the Government carries its own insurance risk and the annual premium is calculated at 3 percent of the net book value of the *Wairua* at 31 March of the year under review.

Table 9

BLUFF - STEWART ISLAND FERRY SERVICE—
SUMMARY OF FINANCIAL RESULTS



This was agreed to by Treasury on 7 September 1962 with the proviso that the rate should be reviewed periodically to ensure the amount charged bears comparison with the premiums which would be payable if a policy were taken out with an insurance company.

The annual premium is currently being calculated at 3 percent. However, it is thought that this figure should be reviewed periodically.

Main Features of the Accounts

The ferry service accounts for the years 1963–72 have been summarised in appendix II. Four important totals from this summary and extending back to 1955 are shown on the graph above:

Total cost; operating cost; total revenue; cash revenue (all revenue except lighthouse revenue).

Consistent Substantial Losses

The service has never been financially self-supporting but losses have been incurred at a consistently high level during the period under review. Losses are, in effect, the subsidies paid by Government to maintain the service and have totalled $742,227 for the first 10 years of the *Wairua's* operation.

The vessel was designed to provide a single vessel to perform a variety of tasks in an area which is notorious for bad weather and where sea transport alternatives are virtually non-existent.

The regular traffic offered to the *Wairua* is relatively small and could be handled by a smaller vessel except during the peak of the holiday season when the *Wairua* is unable to carry all the passengers seeking accommodation. The berthed accommodation required for the vessel's lighthouse service role is used infrequently but its conversion to day-passenger area would provide little improvement.

When the *Wairua* commenced service, losses rose sharply. This was caused by the high ownership costs associated with a new vessel. Although these costs have decreased steadily throughout the period, operating costs have increased and the increase in income resulting from increased traffic has been insufficient to hold the position. This situation prompted an increase of fares and freight rates from 1 September 1971.

Ownership Costs

This group comprises assessments for interest, depreciation and, insurance. These items totalled $598,073 over the 10-year period which equals the original cost of the vessel. This total is not excessive, but rather it is considered to be less than it would cost a private organisation to service the same assets.

Interest: The rate of 4½ percent is modest. In order to raise long-term capital at present, the Government must offer in excess of 5 percent, while a private organisation would need to offer more.

Depreciation: The function of this charge to apportion capital costs over the life of an asset is well known. It is reasonable that the early years of the ship's life should bear a greater proportion of the cost because during this period, diminution in value is more rapid. The rate used (6 percent of depreciated value) has reduced the original cost by 46 percent over 33.3 percent of the estimated useful life.

Insurance: The premium rate used (3 percent) could be below that offered by underwriters.

Lighthouse Service Revenue

The percentage of total revenue derived from this source has risen from 23.6 percent in 1963 to 36.1 percent in 1972. Total for the 10-year period is $342,062. Assessment is made as follows:

$$\frac{\textit{Total cost}}{1} \times \textit{Lighthouse operating hours}$$

total operating costs

and is an approximation of the cost of the service provided. An exact charge would involve the maintenance of cost records.

The formula is based on the assumption that costs are incurred at the same rate whether the vessel is employed on ferry service or lighthouse service. It has been suggested that the assessment does not cover the full cost of lighthouse servicing because this work involves surfing allowance and an excessive proportion of work at overtime rates.

Fare and Freight Rate Increases—1 September 1971

The following table shows rates before and after 1 September 1971 together with the percentage increases.

Table 10

Passenger Fares	Old Rate	New Rate	Percent Increase
	$	$	$
Single adult	2.50	3.00	20
Single child	1.25	1.50	20
Single pensioner	1.25	1.50	20
Excursion adult	3.00	4.00	33.3
Excursion child	1.50	2.00	33.3
Group travel (minimum party of 10):			
Adult	4.00	4.00	..
Child	2.00	2.00	..

Table 10—continued

Passenger Fares	Old Rate	New Rate	Percent Increase
	$	$	$
Family stopover	12.50	15.00	20
Medical and dental concession (return):			
Adult	1.80	2.25	25
Child	80	1.10	37.5
Charter Rates:			
Weekday	275.00	550.00	100
Saturday	350.00	700.00	100
Sunday	425.00	850.00	100
Saturday/Sunday overnight* ..	750.00	850.00	19.3
Freight Rates:			
General cargo (per cu ton) ..	3.50	7.00	100
Bulk fuel (per 100 gal) ..	1.40	2.10	50
Rock lobster (per 50 lb case) ..	.25	.42	68
Wet fish (per 50 lb case) ..	.40	.64	60
Timber (per cu ton = 480 cu ft)	3.50	7.00	100
Livestock (e.g., per cow) ..	3.50	7.00	100
Motor vehicles:			
Car up to 13 ft 3 in. length ..	5.00	10.00	100
Car up to 15 ft length ..	10.00	15.00	50

*Does not involve overnight accommodation on the vessel.

While a detailed forecast of 1973 financial results has not been made, it is expected that total revenue will exceed operating costs by a small margin for the first time since 1965. Other factors affecting profitability besides the effect of the increased rate for a full year include:

(a) *Increase in cargo carried*: This item has increased sharply during the year ended 31 December 1971. The effect on freight income is difficult to assess because tonnage is measured in a variety of ways and increases have not been made at a standard rate. A large part of the inward cargo increase is attributed to recent building activity on the island. It is too soon to assess the effect of freight rate increases on the volume of cargo offered.

(b) *Increase in scheduled passenger traffic:* Passengers-carried statistics have been presented in a variety of ways since the commissioning of the *Wairua*. These are year ending 28 February, 31 March, and 31 December. The totals of passengers carried for recent years (ending 31 December) are:

1966 ..	.. 24,839
1967 ..	.. 27,228
1968 ..	.. 25,449
1969 ..	.. 26,081
1970 ..	.. 26,798
1971 ..	.. 28,516

Fare increases are not expected to have a significant effect on the number of passengers because the great majority are tourists.

(c) *Decline in charters:* This activity dropped sharply following the rate increase. Income from this source, which had averaged $4,590 per annum over the previous 5 years, fell to $1,704 for the year ending 31 March 1972.

(d) *Subsidies, fares, and freight rates:* Until recently there appears to have been no official statement concerning the level of subsidy that is acceptable in the provision of the ferry service.

Concurrent with the substantial increases in fares and freight rates in 1971, the Marine Department proposed a review of all charges each year at 31 March. The intention was "to ensure that operating losses are kept to a minimum consistent with a reasonable passenger/freight service between Bluff and Stewart Island and the other traditional *Wairua* services. No review was undertaken at 31 March 1972 because the new rates had been effective for only 7 months and a price freeze was in operation.

It appears that the annual review must follow the completion of the financial accounts and a statistics statement describing passenger and cargo traffic for the financial year. Any resulting adjustments could not be made effective until July or August. The statement concerning the acceptable level of loss (subsidy) quoted above is rather general and it is considered that a more definite indication is required.

The ferry service is of vital importance to Stewart Islanders and their reaction to recent increases is evidence that they will show intense interest in any future adjustments to the fare and freight-rate schedule. It would therefore be desirable to relate any future adjustments to the operating statements on which they are based.

From the commissioning of the *Wairua* until the year ending 31 March 1969, total revenue has been approximately equal to operating costs. Consequently losses (subsidies) for the period have

been similar to the level of overhead costs. This level of subsidy appears to have been acceptable. After 31 March 1969, increasing operating costs were not matched by total revenue until the 1971 rate increases.

It is considered that the level of future subsidies should not be tied completely to the ferry service cost structure because traffic volume also affects the level of loss suffered. Whatever subsidy level is considered satisfactory should be indicated clearly so that the situation can be followed by the Stewart Island community with reference to the published financial results of the ferry. Unless this is done, uncertainty about the cost of ferry services may have an adverse effect on the island's commercial activities.

Methods of Fixing Freight Rates

It is recommended that information concerning the policy that will be followed when adjusting fares and freight rates in the future be given adequate publicity. Three methods of fixing fares and freight rates are suggested:

(1) Fix an acceptable minimum level of cash revenue. This could require that cash revenue should cover the share of operating costs attributable to the ferry service; any resulting subsidy to be considered acceptable. This share was assessed at 80 percent in 1970 and 75 percent in 1972. It should be noted that this level has not been achieved since 1963. If the 1971 increases do not reduce overall traffic volume significantly, the position should be recovered.

(2) Relate charges to the New Zealand Rail Services Wellington-Picton ferry service. Apart from the fact that both services carry passengers and freight by sea they really have little in common. However, the Picton service has been established in competition with other transport operators and charges are therefore an indication of market rates. It may be assumed that any loss (subsidy) incurred under this rate schedule is a reasonably accurate measure of the cost involved in operating the specialised Bluff - Stewart Island service.

This method may conflict with the statement quoted at the beginning of this section: "ensure that operating losses are kept to a minimum . . ." in that the Bluff - Stewart Island rates are slightly higher at present. However an adequate comparison would require a breakdown of the volume involved in each item of traffic including the proportion of cargo carried in small shipments.

Worth-while consideration of fares and freight rates in relation to cash revenue requires appropriate statistics as well as financial information.

(3) The third possibility suggested by the survey team is that fares and freight rates should be set at such a level so that the ferry service would be self-supporting.

Traffic volumes of individual items must be known and the likely effects of rate changes on traffic volume must be assessed. With these comments in mind it is of interest to note that break even would have been achieved for the year ended 31 March 1971 if all rates had been increased by 104.5 percent over the old level at the same traffic volume as then pertaining. This assumption may not be valid as price increases of this magnitude could tend to reduce traffic volumes. During the following year, rates were increased and details have been listed earlier in this section. A comparison between representative rates for before the period 1 September 1971 increase, the increase in 1971 and the increase by 104.5 percent is tabulated below:

Table 11

FARE AND FREIGHT PRICE COMPARISONS

	Before 1 September 1971	After 1 September 1971	+104.5 Percent
	$	$	$
Passenger Fares:			
Single adult	2.50	3.00	5.11
Single child	1.25	1.50	2.56
Single pensioner	1.25	1.50	2.56
Excursion adult	3.00	4.00	6.14
Excursion child	1.50	2.00	3.07
Charter Rates:			
Weekday	275.00	550.00	562.38
Saturday	350.00	700.00	715.75
Sunday	425.00	850.00	869.13
Freight:			
General cargo (per cu ton) ..	3.50	7.00	7.16
Bulk fuel (per 100 gal) ..	1.40	2.10	2.86
Rock lobster (per 50 lb case) ..	.25	.42	.51
Wet fish (per 50 lb case) ..	.40	.64	.82
Motor vehicles:			
Car (up to 13 ft 3 in.) ..	5.00	10.00	10.23
Car (up to 15 ft)	10.00	15.00	20.45

Replacement Vessel

The present economic life of the *Wairua* is estimated to be another 10–15 years so that we had to consider whether or not there were justifiable grounds for suggesting replacing *Wairua* before the end of her economic life.

There is no doubt that the *Wairua* is not an ideal ferry vessel but then, she was not built as solely a ferry vessel. When designed, other features had to be incorporated in the vessel to cover duties on lighthouse and muttonbird trips. The need for providing a large motorboat and surf boats for lighthouse servicing has reduced the amount of open deck space available for passengers on the ferry service and illustrates the difficulties experienced by the designer.

Some of the residents of Stewart Island complained of the accommodation facilities available on the *Wairua* and at peak holiday times, no doubt, seating would be at a premium and conditions really cramped. However, it would appear that there are very few times during the year that the *Wairua* carries over 250 passengers on a voyage.

One of the serious complaints concerning the *Wairua* passenger accommodation is her lack of open deck space available for passengers. Apart from the forward lounge the rest of the covered accommodation is in the aft section of the vessel. The master of the *Wairua* told us that this aft accommodation is unpopular with passengers, particularly the lounges on the lower deck. These lower lounges are apparently only used by passengers in wet conditions or when other lounge accommodation is full. Passengers who are bad sailors normally wish to keep out in the fresh air and we have been informed by the master that because of lack of outside deck space available, people are sometimes packed outside in bad weather conditions. The master of the *Wairua* has prepared some plans to increase the present outside deck space available to passengers. The plan seems feasible to us and we would recommend that every consideration be given to it, as any increase in open deck space available can only improve passenger facilities on board *Wairua*.

Without advertising the service, the *Wairua* has been able to cope with passengers and freight between Stewart Island and Bluff. How then could a replacement vessel for *Wairua* be justified immediately, if such a replacement were available? In our opinion there are no grounds, both from a traffic and economic viewpoint, to recommend immediate replacement of *Wairua*. Before any replacement vessel is considered it is our view that the Bluff - Stewart Island ferry service should first be promoted and widely advertised. The present *Wairua* quite adequately carries out the servicing needs of the Stewart Island residents at the present time. It is the tourist trade to the island which will determine whether or not the present *Wairua* should be replaced, say, within the next 10 years. In our opinion then, the present service must improve greatly in passenger capacity, especially in the off-season period, to justify the need for a replacement vessel.

If Government were to consider a replacement vessel we would expect it to be around 200 ft in length and have a service speed of about 17 knots. She should be capable of accommodating up to 600 day passengers and as well as having adequate passenger-lounge facilities, have light refreshment and cocktail bar facilities. Such a vessel would, in our view, be capable of up to two round trips a day between Bluff and Stewart Island. Another advantage of such a vessel would be that after arriving at Stewart Island, it could undertake cruises, particularly in Paterson Inlet and Port Adventure. The vessel should also have a cargo capacity of 300 tons and lifting gear capable of a 10-ton lift. Consideration could also be given to incorporate side-loading facilities in any new ferry vessel so that cargo in particular could be carried on small freighter trailers. We would also recommend that any replacement vessel for *Wairua* be designed and operated purely as a ferry and tourist service vessel. Other arrangements would have to be made for lighthouse and muttonbird servicing. We would further envisage that a replacement vessel should operate on the user pay principle and that fares and freight be such that no Government subsidy is necessary. We would expect that crewing for a replacement vessel would be much the same as for *Wairua* other than extra stewards required for eating and bar facilities. The present estimated cost of a replacement vessel would be between $1½ million and $2 million.

Some preliminary investigation has been made into the use of hydrofoil and hovercraft between Bluff and Stewart Island. While both types of craft could probably handle most weather conditions, neither are particularly suitable because of their lack of cargo space unless, in the case of the hovercraft, a very large model were purchased. Hydrofoils would be particularly suitable during the peak holiday periods but in conjunction with a hydrofoil a small cargo vessel would have to be operated.

If the service is adequately promoted throughout New Zealand, the popularity of the service could become such that the introduction of a replacement vessel for *Wairua* may be a necessity after the next 5 years or even before that time.

Recommendations

It is recommended that:

(1) The Bluff - Stewart Island ferry service be widely promoted. A special attempt be made to attract off-season travellers.

(2) Minor alterations to the Halfmoon Bay Wharf (removal of part of the roof and walls of the truck dock) be carried out.

(3) The Southland Harbour Board be asked to allocate a permanent berth for the *Wairua* on the "Island" and to permit the construction of a ferry terminal.

(4) A ferry terminal be constructed comprising a cargo store and separate ships store with passenger facilities and offices for Marine Department staff above. Following the provision of a cargo store, cargo receiving and handling facilities be provided at Bluff and assistance given to the clerk/wharfinger, Halfmoon Bay, for the release of cargo.

(5) Consideration now be given as to a suitable replacement vessel for the Bluff - Stewart Island ferry service.

(6) The intention to review fares and freight rates annually be reaffirmed, the review to be made following preparation of the financial accounts of the ferry service and associated operating statistics.

(7) If concession fares are to be continued, then it is considered that priority should be given to residents of Stewart Island over any other group.

(8) The rate charged for interest on capital should be subject to annual review.

(9) The rate allowed for insurance be subject to periodical review to ensure that the amount charged bears comparison with premiums which would be payable if a policy were taken out with an insurance company.

(10) Statistics relating to the *Wairua* be compiled by the Bluff office of the Marine Department so that a continuing review of operations can be made. These statistics should include actual running hours, ticket sales, and passenger and freight flows.

APPENDIX I: LIGHTHOUSE SERVICE CHARGE ASSESSMENT

In 1970 the lighthouse servicing charge was $35,124 which is 20 percent of the total cost $176,738. The wages and salaries item totalled $71,877 of which $2,361 (salary of the clerk/wharfinger, Halfmoon Bay) is incurred by the ferry service alone. Of the remainder $27,575 (40 percent) was overtime and extra days pay, and $1,234 (2 percent) was for surfing and victualling.

During 1970 weekend overtime was worked as follows:

	Number of occasions	
	Saturday	Sunday
(a) Ferry service (including muttonbird trips and charters)	17	12
(b) Lighthouse servicing	3	2
(c) Survey and maintenance	21	2

Item (c) is disregarded because it is reasonable to assume that this cost is incurred proportionately. Of the remaining occasions, when weekend overtime was worked, 15 percent were for lighthouse servicing.

Overtime

Weekday overtime is worked for both purposes.

Ferry: A return trip Bluff - Stewart Island in good weather on a weekday necessitates an average of 2 hours overtime per man, which under the latest award and agreements amounts to a total of $44.85. The ferry made 155 scheduled return trips in 1970, of which approximately 140 were made on weekdays.

Lighthouse servicing: Less than 20 calls are made in the course of a year and they are almost always arranged on weekdays. For comparison it could be assumed that trips to Centre Island and Dog Island are equal to normal ferry trips, while trips to Puysegur Point could be equated with four ferry trips.

Centre Island	6
Dog Island	6
Puysegur Point (8 x 4)	32
	44
Less weekend trips (above)	5
	39

On the basis of these assumptions, weekday overtime is worked for lighthouse servicing on 22 percent of all occasions.

Summary: This discussion indicates that use of the formula results in the lighthouse servicing being overcharged and undercharged as follows:

	$
Clerk/Wharfinger—salary overcharge (20 percent of $2,361)	472
Surfing and victualling undercharge (80 percent of $1,234)	987
Weekend overtime overcharge 5 percent ..	
Weekday overtime undercharge 2 percent	

The calculated charge is therefore close to the actual position.

However, to be strictly consistent, an allowance should be made for the running hours spent on annual survey. The cost of these hours should be apportioned between the ferry service and the lighthouse service. With this proviso, unless there is a substantial change in the pattern of the *Wairua's* operation, the assessment which is based on the total cost, is considered satisfactory.

APPENDIX II: BLUFF - STEWART ISLAND FERRY SERVICE

Summary of Financial Results 1963–72

Years ending 31 March	63	Percent	Percent Change	64	Percent	Percent Change	65	Percent	Percent Change	66	Percent	Percent Change	67	Percent	Percent Change
	$			$			$			$			$		
Operating Cost:															
Salaries and wages ..	42,646	61.7		49,794	61.9	16.8	53,134	60.2	6.7	56,312	60.9	6.0	62,880	65.9	11.7
Repairs and maintenance	9,430	13.6		10,016	12.4	..	13,002	14.7	29.8	13,996	15.1	.1	11,884	12.5	−15.1
Other	17,088	24.7		20,662	25.7	20.9	22,192	25.1	7.4	22,248	24.0	..	20,612	21.6	−7.4
Total (A) ..	69,164	100.0		80,472	100.0	16.3	88,328	100.0	9.8	92,556	100.0	4.8	95,376	100.0	3.0
Revenue:															
Fares (1)	48,182	55.2		39,748	52.2		35,036	37.0		35,914	42.1		45,514	48.4	
Freight	18,462	21.2		17,454	22.9		17,910	18.9		13,960	16.4		18,994	20.2	
Lighthouse servicing ..	20,616	23.6		18,964	24.9		41,764	44.1		35,364	41.5		29,594	31.4	
Total (B) ..	87,260	100.0		76,166	100.0	12.7	94,710	100.0	24.3	85,238	100.0	10.0	94,102	100.0	10.4
Working Loss:															
(A–B) (surplus +) (C) ..	18,096+			4,306			63,82+			7,318			1,274		
Overhead Cost:															
Administration (2) ..	7,414			8,318			9,710			11,100			11,128		
Interest	24,170			23,256			22,486			21,270			20,108		
Depreciation	33,304			33,162			31,666			29,944			28,142		
Insurance (percentage of loss for year).. ..	15,560			15,370			14,446			13,696			12,926		
Total (D) ..	80,448	129.0		80,106	94.9		78,308	108.9		76,010	91.2		72,304	98.3	
Loss for year = C + D (percentage of total cost) ..	62,352	41.7		84,412	52.6		71,926	43.2		83,328	49.4		73,578	43.9	

Years ending 31 March	68	Percent	Percent Change	69	Percent	Percent Change	70	Percent	Percent Change	71	Percent	Percent Change	72	Percent	Percent Change
	$			$			$			$			$		
Operating Cost:															
Salaries and wages ..	66,441	63.4	5.7	64,318	60.5	−3.2	71,877	60.7	11.6	93,571	63.6	30.2	97,325	64.4	4.0
Repairs and maintenance	16,706	15.9	40.6	17,102	16.1	..	19,161	16.2	12.0	22,893	15.6	19.5	29,885	19.8	30.5
Other	21,685	20.7	5.2	24,944	23.4	15.0	27,288	23.1	9.4	30,582	20.8	12.1	23,956	15.8	−21.7
Total (A) ..	104,832	100.0	9.9	106,364	100.0	1.5	118,326	100.0	11.2	147,046	100.0	24.3	151,166	100.0	2.8
Revenue:															
Fares (1)	40,463	45.7		45,046	44.3		46,644	45.5		50,552	41.7		58,565	39.3	
Freight	16,865	19.0		22,915	22.6		20,713	20.2		28,528	23.6		36,769	24.6	
Lighthouse servicing ..	31,236	35.3		33,664	33.1		35,124	34.3		41,940	34.7		53,796	36.1	
Total (B) ..	88,564	100.0	−5.9	101,625	100.0	14.7	102,481	100.0	0.8	120,990	100.0	18.1	149,130	100.0	23.3
Working Loss: (A–B) (suplus +) (C) ..	16,268			4,739			15,845			26,056			2,036		
Overhead Cost:															
Administration (2) ..	10,498			7,014			7,362			7,983			10,263		
Interest	18,954			17,773			16,805			15,901			15,583		
Depreciation	26,375			24,857			23,449			22,535			22,190		
Insurance (percentage of loss for year).. ..	12,150			11,376			10,796			10,151			9,672		
Total (D) ..	67,977	80.7		61,020	92.8		58,412	78.7		56,570	68.5		57,708	96.6	
Loss for year = C + D (percentage of total cost) ..	84,245	48.8		65,759	39.3		74,257	42.0		82,626	40.6		59,744	28.6	

NOTES:

(1) Includes receipts from charters (including muttonbird trips) and net coffee bar returns.

(2) Includes audit fee and office expenses.

Source: Annual reports of the Marine Department.

APPENDIX III: MARINE DEPARTMENT

BLUFF - STEWART ISLAND FERRY SERVICE TIMETABLE 1972–73

BOOKINGS ARE ESSENTIAL

Sails Twice Weekly

Weather and other circumstances permitting, the g.m.v. *Wairua* will observe the following timetable. Tuesdays and Fridays until 4 December 1972, leaves Bluff 8 a.m. and Stewart Island 1.45 p.m.

Queen's Birthday Weekend 1972

Additional trips Saturday, 3 June, and Monday, 5 June. Leaves Bluff 8 a.m. and Stewart Island 1.45 p.m.

Labour Weekend 1972

Additional trips Saturday, 21 October, and Monday, 23 October. Leaves Bluff 8 a.m. and Stewart Island 1.45 p.m.

	Leave Bluff	Leave Stewart Island
December 1972	a.m.	p.m.
Monday, 4	8.00	1.45
Wednesday, 6	8.00	1.45
Friday, 8	8.00	1.45
Monday, 11	8.00	1.45
Wednesday, 13	8.00	1.45
Friday, 15	8.00	1.45
Monday, 18	8.00	1.45
Wednesday, 20	8.00	1.45
Friday, 22	8.00	1.45
Sunday, 24	8.00	3.00
Tuesday, 26	8.00	1.45
Wednesday, 27	8.00	1.45
Thursday, 28	8.00	1.45
Friday, 29	8.00	1.45
Saturday, 30	8.00	1.45
Sunday, 31	8.00	3.00
January 1973		
Monday, 1	8.00	1.45
Tuesday, 2	8.00	1.45
Wednesday, 3	8.00	1.45
Thursday, 4	8.00	1.45
Friday, 5	8.00	1.45
Saturday, 6	8.00	1.45

	Leave Bluff	Leave Stewart Island
January 1973—continued	a.m.	p.m.
Sunday, 7	8.00	3.00
Monday, 8	8.00	1.45
Tuesday, 9	8.00	1.45
Wednesday, 10	8.00	1.45
Thursday, 11	8.00	1.45
Friday, 12	8.00	1.45
Saturday, 13	8.00	1.45
Sunday, 14	8.00	3.00
Monday, 15	8.00	1.45
Tuesday, 16	8.00	1.45
Wednesday, 17	8.00	1.45
Friday, 19	8.00	1.45
Sunday, 21	8.00	3.00
Monday, 22	8.00	1.45
Wednesday, 24	8.00	1.45
Friday, 26	8.00	1.45
Sunday, 28	8.00	3.00
Monday, 29	8.00	1.45
Wednesday, 31	8.00	1.45
February 1973		
Friday, 2	8.00	1.45
Sunday, 4	8.00	3.00
Monday, 5	8.00	1.45
Wednesday, 7	8.00	1.45
Friday, 9	8.00	1.45
Sunday, 11	8.00	3.00

Sails three times each week Monday, Wednesday, and Friday from Monday 12 February, until Easter. Leaves Bluff 8 a.m. and Stewart Island 1.45 p.m.

Sails twice weekly Tuesdays and Fridays from Friday, 28 April 1973. Leaves Bluff 8 a.m. and Stewart Island 1.45 p.m.

Fares

Stopover	Adults $6 ..	Children $3.
Excursion	Adults $4 ..	Children $2.
Single	Adults $3 ..	Children $1.

Children 4 to 14 years inclusive.

Family Stopover Concession: $15 covers a family of two adults and two or more children. Adult son or daughter may be substituted for a parent.

Group Stopover Concession: Fares are reduced to $4 adult and $2 child for parties of 10 or more. The party may be any combination of adults and children.

Easter Timetable 1973

	Leave Bluff	Leave Stewart Island
April		
Thursday, 19	8.00 a.m.	11.00 a.m.
	1.30 p.m.	4.00 p.m.
*Friday, 20	8.00 a.m.	11.00 a.m.
	1.30 p.m.	4.00 p.m.
Saturday, 21	8.00 a.m.	1.45 p.m.
Monday, 23	8.00 a.m.	1.45 p.m.
*Tuesday, 24	7.00 a.m.	10.00 a.m.
	12.30 p.m.	3.00 p.m.
*Wednesday, 25	7.00 a.m.	10.00 a.m.
	12.30 p.m.	3.00 p.m.

*No day excursion.

Reserved Passengers must board the vessel before 7.45 a.m. at Bluff.

Charter Trips to Halfmoon Bay: g.m.v. *Wairua* is available for a limited number of chartered voyages to Halfmoon Bay.

Prospective charterers should make arrangements as early as possible and give an alternative date as well as the suggested date (arrangements for charters can only be made through the Marine Department).

Any further information required may be obtained from:

Marine Department,
P.O. Box 18,
Bluff.

Marine Department,
P.O. Box 11,
Halfmoon Bay,
Stewart Island.
'Phone: 34 Halfmoon Bay.

or any Government Tourist Bureau or Travel Agency.

3. AIR TRANSPORT

History

The establishment of an amphibian air service to Stewart Island originated with an application for a permit for an air service in 1950 in respect of a Douglas "Dolphin" twin-engined amphibian capable of being adapted to carry 12 passengers.

Later in 1950 further applications were made by two other groups, the last being Amphibian Airways Ltd. The first two applicants were unable to bring their plans to fruition.

Approval for Amphibian Airways Limited to begin operations from Invercargill to Lake Wakatipu, Lake Te Anau, and Halfmoon Bay, Stewart Island was given with effect from 1 March 1951.

The first Grumman Widgeon, was purchased from Australia and put into service in January 1951. Survey work, in what was then an unknown area, was carried out by March of that year. Operations then commenced on a charter basis with a limited service to Stewart Island. It became obvious, during the first year of operating that it would be difficult for the company to properly provide a service, because of the factors involved in having many groups deposited in areas accessible only be amphibian aircraft and having only the one aircraft available in New Zealand. In October 1952, a second Grumman Widgeon was purchased from the U.S. and brought into service.

In the first 2 years of operation experience was gained and air access made into hitherto virtually unknown parts of Fiordland, It has been said that during this period 5 lakes were discovered and some 120 landing places selected in 52 approved waterways.

Since this time, development of additional areas has continued and, at the present time, a number of lodges, huts, boats, and other facilities including radio stations necessary for the maintenance and continuance of this service, were dispersed strategically in the hinterland of Fiordland, West Coast Fiords, and Stewart Island.

In the years between 1951 and 1966, the amphibian service provided this link between these areas and Invercargill. Apart from the practical day to day advantages to residents living in the area and requiring quick efficient connection to the National Airways link, the service played a large part in the development of tourism and in providing a method for extraction of people in remote areas for medical or other emergency causes. In fact, during this early period, for each year of operation, an average of one flight per week was made for either ambulance work or for carriage of technicians engaged in urgent repairs to plant or breakdowns of machinery in the various industries and homes.

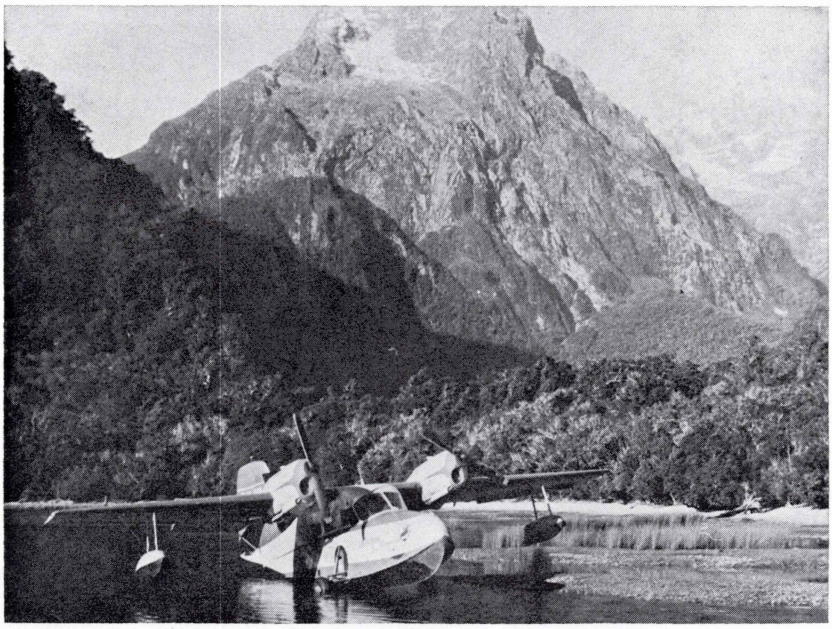


Figure 12.

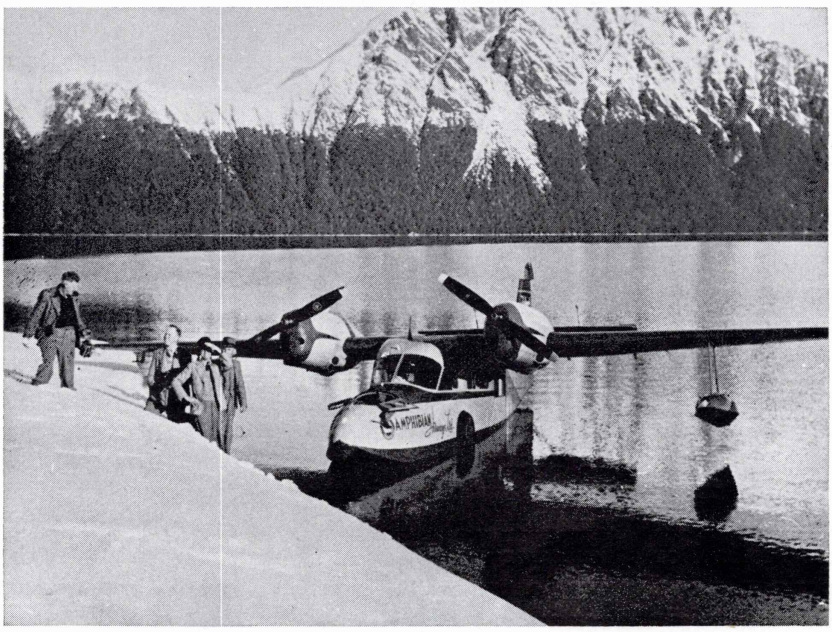


Figure 13.

Figure 14.

Figure 15. Amphibian Airways operations in Fiordland areas.

The importance of the amphibian air service to the fishing industry, particularly in the more remote areas, was realised. Radio equipped vessels were able to call upon the service for breakdowns of refrigerator plant and machinery, or for accident or other distress. In fact, it is recorded that in one of the early years of operation 121,000 lb of crayfish tails were flown out from various locations along the Fiordland coast and 24,000 lb of stores, parts, and fuel were flown in for fishing craft.

During these early years, an amphibian service was provided to the lighthouse at Puysegur Point. This is probably one of the most isolated places in New Zealand. This service provided a continual frequency of visits for families living there and for delivery of mail, general goods, and mechanical equipment. Besides, having a radio beacon station for shipping, it also provided every few hours, vital weather reports to the national link. Any breakdowns necessitating a technician being brought into repair, could be effected by the use of the amphibian. The savings, using this form of transport, may not be so obvious but the only alternative, during those times, was to go by sea, a return trip of some 200 miles, which depended on availability of a suitable vessel.

Also, in these early years of the amphibian service, considerable work was carried out in the Fiordland area in matters of hydrographic, biological, geographical, and geological surveys. The aircraft provided means of establishing various facilities concerned with these projects at a considerable saving in time and expense when compared with the other alternative of overland expeditions. There was the additional work arising from the requirement to service the survey teams.

Valuable service was also given in times of emergency, typified by the amphibian flying in pumps and other equipment to Dusky Sound in 1957, which probably saved the Bluff vessel *Diane* from almost certain destruction. The pumps and other equipment enabled the ship's crew to extricate the vessel from rocks. During 1957 alone there were some 27 emergency flights to fishing vessels. Police and search personnel were flown to the wreck of the vessel *Gekeita* at Chalky Inlet, a wounded child was evacuated from Puysegur Point and received hospital treatment within 2 hours of the accident. A man injured whilst working with the south-west Te Anau exploratory party was extricated and, there were a large number of mercy flights to Stewart Island where there was no resident doctor.

As the attractions of the Fiordland National Park became more widely known an increasing number of people used the area and this in turn gave more emphasis to the requirement to have a suitable aircraft available to service the area.

Amphibian Airways was purchased by New Zealand Tourist Air Transport Ltd. in 1961. By this time, the Stewart Island service comprised a large part of the work carried out by the amphibians, two of which were operated at that time. In 1970 ownership changed to Mount Cook and Southern Lakes Tourist Company.

Characteristics of Grumman Widgeon Service to Stewart Island

To those who are not familiar with the Grumman Widgeon Model G44 or G44A currently operating between Invercargill, Stewart Island, and other southern waterways, the aircraft was built in 1946 and is capable of carrying five persons, plus the pilot and has a load capacity of some 1,000 lb. The aircraft needs no special facilities for landing at water locations, other than suitable shelving to enable it to taxi onto dry land. It is relevant to mention at this time that apart from the use of existing facilities at aerodromes few other facilities have been provided at other locations, and in particular Halfmoon Bay, in the form of hard standing areas or for administration and other buildings and services.

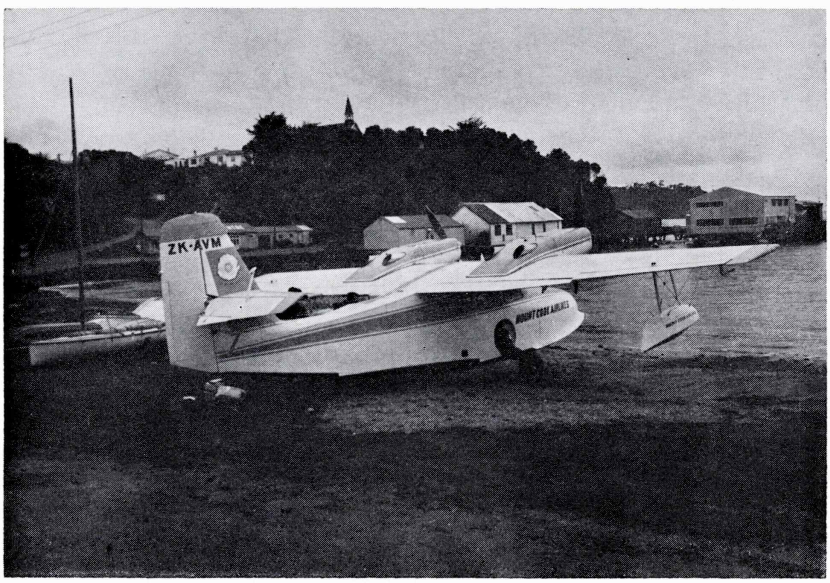


Figure 16. Unloading of Grumman Widgeon in front of "South Seas" Hotel.

Timetable

The current timetable (from May to September 1972) for the Grumman Widgeon operation to Stewart Island is:

Day	From Invercargill Departs	From Invercargill Arrives	From Stewart Island Departs	From Stewart Island Arrives
Monday, Wednesday ..	08.00	08.20	08.30	08.50
Friday	17.00	17.20	17.30	17.50
Saturday	10.00	10.20	10.30	10.50
Sunday..	14.00	14.20	14.30	14.50

In total, this represents eight return flights per week or 416 per year. However many additional flights are made under non-scheduled services and on taxi and charter operations.

Complete statistics for the operation of the Grumman Widgeon service to Stewart Island are not available for every year since commencement of operations in 1951. The earliest traceable records relate to the first year of operation of Amphibian Airways. This showed 146 return flights to Stewart Island carrying 803 passengers and 15,680 lb of freight. This was out of a total 421 flights carrying 1,587 passengers and 48,728lb of freight. In other words 33 percent of flights, 50 percent of passengers, and 32 percent of freight carried by the amphibian was to Stewart Island.

In the ensuing years, there was a noticeable tendency for Stewart Island traffic to increase to 53 percent in 1956 and to 79 percent in 1960. In the financial year ending 31 March 1972, 89 percent of the flights, 94 percent of the passengers, and 88 percent of freight were between Invercargill and Stewart Island. However, this gives a false impression when compared with hours of use of the aircraft, on which economics of operating are based, as 29 percent of hours flown were to locations other than Stewart Island.

To illustrate the growth of traffic over the last 21 years, a table is produced below from periods when full records are available.

Table 12

TRAFFIC GROWTH

Year	Return Flights No.	Return Flights Percent Increase	Passengers No.	Passengers Percent Increase	Freight Amount	Freight Percent Increase
					lbs	
1952 ..	146	..	803	..	15,630	..
1955 ..	227	55	1,164	44	28,652	83
1960 ..	350	35	2,691	131	14,360	..
1966 ..	481	37	2,582	..	13,966	..
1970 ..	1,792	272	5,602	108	28,413	103
1971 ..	2,064	15	6,694	19	39,982	40
1972 ..	2,355	14	7,283	8	65,462	63

It can be seen that there has been a steady increase in the number of flights per year and it is noticeable also that percentage increase is dropping as the utilisation of the aircraft increases towards the maximum. This is indicated in the figures for yearly passengers throughout, where, currently, the utilisation of seats is at 61.4 percent.

From an analysis carried out in 1960, of the passengers carried by Amphibian Airways in that year, 55.3 percent were residents of Stewart Island, approximately 38.1 percent were tourists to the island, and the remaining 6.6 percent were official personnel. Although it has not been possible at this stage to update these figures, it may be reasonable to assume that the same percentages may apply to present usage of the amphibian aircraft. On this basis, in 1972, approximately 3,932 passengers were local residents and 2,709 were tourists, the remaining passengers being officials. From this, it appears at this stage that the air service is used mainly by local residents. This includes people who commute to the island at weekends.

Seasonal Fluctuation

Produced below is table 13 showing passenger figures by months from 1966 to 1972 inclusive. It can be seen that during the busiest months of December, January, February, and March 15,249 or 44 percent of total passengers were carried.

Also produced is table 14 showing return flights per month for the same period. Flights during December, January, February, and March comprised 44 percent of the total.

Table 15 shows average number of passengers per month taken from this same period. This indicates consistency throughout the year where the average registers as low as 2.82 per flight to 3.19 giving an overall average of 3.07 per flight or 61.4 percent seat occupancy.

Table 13

PASSENGERS CARRIED

	1966	1967	1968	1969	1970	1971	1972	Total
April . .	169	280	239	318	486	471	656	2,619
May . .	171	221	307	295	427	544	753	2,718
June . .	88	136	200	288	211	273	349	1,545
July . .	112	131	141	232	334	570	323	1,843
August	129	175	212	367	355	389	537	2,164
September	155	223	227	347	364	337	444	2,097
October	184	265	341	266	425	551	462	2,494
November	162	279	351	469	370	706	674	3,011
December	312	381	486	523	570	746	768	3,786
January	452	521	542	480	691	874	670	4,230
February	282	355	516	411	662	558	607	3,396
March	366	449	420	564	707	675*	651	3,832
	2,582	3,416	3,982	4,565	5,602	6,694	6,894*	

*In this column there are 389 additional passengers not shown in monthly totals.

Table 14

FLIGHTS

	1966	1967	1968	1969	1970	1971	1972	Total
April . .	64	92	82	94	176	152	244	904
May . .	68	78	102	90	134	160	220	852
June . .	44	58	40	96	80	92	122	532
July . .	52	58	64	82	102	114	114	586
August	60	82	82	116	114	130	182	766
September	64	74	82	124	112	108	144	708
October	68	102	116	80	136	166	166	834
November	92	92	104	162	128	192	186	956
December	108	114	166	180	186	236	218	1,208
January	138	160	168	162	200	292	234	1,354
February	94	114	164	136	194	198	172	1,072
March	110	140	128	190	218	224	202	1,212
	962	1,164	1,298	1,512	1,780	2,064	2,204*	

*Plus 151 flights.

Table 15

CORRELATION FLIGHTS/PASSENGERS CARRIED

	Passengers	Flights	Average Passengers per Flight
April	2,619	904	2.89
May	2,718	852	3.19
June	1,545	532	2.90
July	1,843	586	3.14
August	2,164	766	2.82
September	2,097	708	2.96
October	2,494	834	2.99
November	3,011	956	3.14
December	3,786	1,208	3.13
January	4,236	1,354	3.12
February	3,396	1,072	3.16
March	3,832	1,212	3.16
	33,735	10,984	3.07 = 61.4 percent

Growth

Table 13 gives the passenger increase per year over the last 6 years. Average increase per year is 616.

From table 14 it can be deduced that in some months, return flights average at four and a half per day. In fact, on some days there are eight return trips to the island. This means that during the peak period (December to March) it would probably not be possible

to provide extra flights to the island for particular days. Also, it would seem unlikely that average seat utilisation could be increased much beyond 61.4 percent. However, there would still be a large number of days in the month when extra flights could be provided. It has been said that Friday, Saturday, and Sunday are the busiest periods during the peak of the season. On the basis that from the figures already produced, that during a peak period when perhaps, there are 8 return flights per day, some 24 persons would be carried each way, it could be argued that a larger aircraft, depending on seat capacity, could complete this in one or two trips. This matter will be dealt with when evaluating different types of aircraft that could be considered suitable for the Stewart Island service.

Growth in passenger usage is difficult to assess. The determining factors for Stewart Island are closely related to the growth or otherwise of the fishing industry, development of tourism, and availability of land and building sections. It may be a little optimistic to use the average increase indicated above but if this figure is acceptable, then increase in passenger traffic over the next 5 years is estimated at 3,080. If the increase was proportional throughout the year, this number could be absorbed within existing flights, giving 86 percent seat utilisation. However, if this increase was not absorbed by existing flights, then an additional 500 return flights would be required by 1977. Passenger increase between 1968 and 1972 amounts to approximately the same as the growth envisaged to 1977. In this first period mentioned, the number of flights increased by 1,057. In other words, it may be reasonable to assume that by 1977, using the same aircraft, some 500 additional return flights will be required.

However, using the 5-year period between 1967 and 1972, increase in passenger traffic is over 100 percent. Using this percentage increase with 1972 as the base year, there would be some 14,000 passengers by 1977. Using the same aircraft and the configurations mentioned previously, this would require double the number of flights, or some 2,300 return flights. This could be misleading, however, as can be seen by comparing the figures for 1960 and 1966 where there was a decrease of 109 passengers. It is doubted whether growth could be more accurately assessed. As there is some evidence to suggest that demand will increase rather than lessen, then it may be more acceptable to assess growth on the basis of average increase over the last 5 years. If this proved correct, the existing aircraft would be able to absorb the increase. Further increases beyond 5 years, if they were similar, could be absorbed by the existing aircraft or by utilising another similar type aircraft to the service. This would depend not so much on the availability of this type of aircraft, but on the economics of the operation and the availability of spare parts.

Provision of Airstrip

In 1934 the Stewart Island County Council, as a result of a conference decision from representatives of the council, the Southland Aero Club, and the Southland Progress League, approached the then Controller of Civil Aviation requesting an engineer to inspect a proposed landing site west of Halfmoon Bay. The intention being to develop this site as a landing ground. Subsequent inspection of a number of suggested sites were made in 1935 but found to be unsuitable. Various proposals were put forward to the Controller of Civil Aviation, including a suggestion that the Halfmoon Bay beach be licensed as an aerodrome. This and other beaches were considered dangerous by another inspection team comprising an Air Force officer and a member of the Southland Aero Club.

In 1948 the matter of providing an aerodrome at Stewart Island was raised again. This was still being considered and inspections made of various areas of Stewart Island when an amphibian service was first suggested. However, Masons Bay Beach, which is some distance from Halfmoon Bay and which is not connected by road was eventually licensed as an aerodrome.

During the years that the amphibian aircraft has been operating, under the three different companies, each company has undertaken its own study to determine the feasibility of developing an airstrip on the island. Some 2 years ago, an independent study was made of two sites, one between Deep Bay and Moses Nugget and the other near Horseshoe Bay. Estimates of costs at that time, including an approach road, were in the vicinity of $135,000. This amount was considered prohibitive.

The Ministry of Works have since looked at a number of sites and it appears that one is considered suitable for development of an aerodrome. This is located about 1 mile west of Oban township and the preliminary assessment of costs is $200,000 for a 3,800 ft by 300 ft airstrip. However, before an estimate of cost for financial committal could be given, it would be necessary to complete a site survey including sinking deep bores. Before this or any other site was seriously considered, it would be advantageous to establish a recording anenometer to obtain detailed wind records. There is also the question of availability of land and owners have already indicated, in some cases, their unwillingness to sell land for aerodrome purposes.

Whatever the cost was found to be, if it was approximately the above figure or more, the financial resources of the Stewart Island County Council are such that a project such as this would be prohibitive. Further than this, it was the opinion of the bulk of Stewart Island residents that expenditure on an airport was not justified at this time, in view of other, to them, more pressing

requirements. It has been thought that the amphibian service was due to finish because the Grumman Widgeon aircraft had reached the end of its economic life, and as they had thought that to retain an air service it would be necessary to provide an airstrip, hence the sudden upsurge of interest.

It is true that rising costs and availability of airframe parts for the Grumman Widgeon are becoming a matter of some concern to Mount Cook Airlines. However, the company have expressed the view that this type of aircraft could continue to operate successfully for some years yet.

It has been said that an aircraft of this type can continue to be operated almost indefinitely as it is possible within New Zealand to manufacture parts which are not otherwise available. There is no maintenance problem with the continental engine or propellers. In short, no one has been prepared to give an accurate estimate of the Grumman Widgeon's life in years. The concensus of opinion is that the aircraft can continue to operate so long as it meets airworthiness maintenance standards. When the increase in usage is such that additional seats and freight space is required, it is possible, at the present time, to utilise another Grumman Widgeon or, alternatively acquire a replacement amphibian in the form of a Grumman Goose.

A comparison of costs of operating aircraft is dealt with later but it is relevant at this time to recognise that the cost of construction of an airstrip at Stewart Island would probably have to be met by Government. At one time when the cost of an airstrip at $120,000 was being considered by the Stewart Island County Council on a joint venture basis, a loan of $60,000 over a 20-year term at 9.02 percent would cost $5,412 per annum for loan repayment and charges. Total income from dues would be in the vicinity of $1,000 per annum. It is anticipated that much of this would be required for airport maintenance. The loan charge itself would probably take approximately 80 percent of the total general rate for Stewart Island.

A loan of $100,000 would cost $9,020 per annum which represents some 50 percent more than the current total general rate income.

Alternative Types of Aircraft

It is considered that any modification of the existing Stewart Island service with another aircraft must include the capability of providing other air services to remote areas. Although Mount Cook Airlines has, at its disposal, a Cessna 185 and 206 aircraft on floats,

based at Te Anau, these aircraft cannot operate in open sea conditions as can the Grumman Widgeon and Grumman Goose aircraft. Other aircraft, considered by Mount Cook Airlines to be suitable under certain conditions, to provide the Invercargill - Stewart Island link, are the Britten Norman Islander (BN2A) and DC 3, both conventional land-based aircraft, and the Grumman Goose amphibian mentioned above.

The Britten Norman Islander, an aircraft designed principally for operating to off-shore islands and short-sector journeys, has seating for nine passengers. The DC-3 aircraft can seat 26 passengers and the Grumman Goose 9.

Economics of Various Types of Aircraft

In the following sections, an attempt is made to evaluate the viability of various types of aircraft. The basis of the evaluation assumes two positions, the first with existing passenger flows and the second that all passenger traffic to the island is carried by aircraft.

It will be appreciated that the two amphibian aircraft could continue to service Stewart Island and other remote areas without the construction of an airfield.

If all passenger traffic was carried by air, for this exercise it has been assumed that the demand would be approximately 40,000 (including 32,000 persons who presently travel by sea). To cope with this, the Grumman Widgeon service is extended to two aircraft.

If the land-based aircraft, mentioned above, are employed on the Stewart Island - Invercargill service, then an amphibious aircraft would probably also have to be maintained to provide a link for remote areas and for search and rescue work if in fact some other type of aircraft was not provided for this function. At present, the remote areas served are numerous, involving 289 individual flights, 194 hours of the flying time servicing 417 passengers and 7,600 lb of freight. In addition, the costs of operating the Britten Norman Islander or DC-3 include daily positioning charges between Queenstown and Invercargill as these aircraft would be used elsewhere on Mount Cook Airlines routes to increase the annual hourly utilisation. The possibility of attracting traffic between Queenstown and Invercargill is considered rather remote and the timing to include overseas tourist groups, virtually impossible to achieve.

The employment of a DC-3 aircraft, because of its operational characteristics, requires a two-pilot service and the costings have included this aspect.

Costs and Revenue not Included

Any contribution to capital cost and the servicing of capital employed in establishing an airfield base at Stewart Island has been omitted. Costs for ground handling, counter, office, and reception space rental expenses, assuming such were to be provided at Stewart Island, have also been omitted. Costs do allow, however, for airport dues, should an aerodrome be provided for land-based aircraft.

Revenue estimates for Stewart Island do not include income derived from freight and mail carried, nor do they allow for income reduction by half fare or other concession rates.

The omissions mentioned in the preceding paragraph should balance and the approximate passenger fares would prove to be accurate enough for an exercise of this nature. The actual costs and fares rate would, of course, be a matter for the Air Services Licensing Authority.

Aircraft compared are already in operation within New Zealand except the Grumman Goose. As an earlier estimation of the operational costs of this aircraft for the Northland area has been examined, the costing data used in that occasion has been accepted.

It will be evident to the reader that the existing services provided by Mount Cook Airlines at Invercargill include the combined costs to operate the Stewart Island timetable services and also taxi and charter services to remote areas.

If a land-based aircraft is substituted for the Grumman Widgeon service to Halfmoon Bay, the annual fixed costs such as depreciation, insurance, and interest charges would obviously increase accordingly for that aircraft and the existing fixed costs for the Grumman Widgeon would have to be met out of a much reduced income, if this aircraft was retained only for service to remote areas. It is very doubtful that service to remote areas could be maintained without a very substantial increase in charges, or alternatively, a subsidy from Government.

Comparable Costs of Aircraft

The costs shown in tables 16 and 17 include comparisons of non-subsidised services operated separately and as an integrated service as presently exists. It can be seen from table 18 what would be expected approximately by way of a Government subsidy for the remote areas presently provided by the Grumman Widgeon, if a land-based operation was established for the Stewart Island Service.

Table 16

AMPHIBIAN AIRCRAFT

——	One Grumman Widgeon 5 Seats 805 hrs	Two Grumman Widgeons 5 Seats 3,355 hrs	One Grumman Goose 9 Seats 551 hrs	One Grumman Goose 9 Seats 2,160 hrs
	$	$	$	$
Direct operating costs ..	19,067	44,610	30,232	38,500
Hourly operating costs ..	15,190	67,083	20,662	81,000
Indirect costs	44,843	75,307	65,105	77,500
Total costs ..	79,000	187,000	116,000	197,000
Passenger demand, Stewart Island	7,283	40,000	7,283	40,000
Average passengers per flight..	3.15	3.15	5.4	5.4
Load factor	63%	63%	60%	60%
Remote Area Services				
With cross-subsidisation over both services:	$	$	$	$
Total costs	19,030	19,030	19,030	19,030
Hours costs	98.10	98.10	98.10	98.10
Single flight costs.. ..	65.85	65.85	65.85	65.85
With independent costs:				
Total costs	19,030	6,764	27,073	11,754
Hourly costs	98.10	34.87	139.55	60.59
Single flight costs.. ..	65.85	23.41	93.68	40.67
Stewart Island Services				
With cross-subsidisation over both services:				
Total costs	$59,970	$167,970	$96,970	$177,970
Hourly costs	$98.15	$50.07	$271.62	$90.94
Single flight costs.. ..	$25.91	$13.23	$71.83	$24.03
Revenue seat-mile costs ..	22.5c	11.67c	36.95c	12.36c
Average fare per passenger..	$8.23	$4.20	$13.30	$4.35
Total costs	$59,970	$180,236	$88,927	$188,246
Hourly costs	$98.15	$53.72	$249.10	$94.66
Single flight costs ..	$22.05	$12.05	$33.04	$12.09
Average fare per passenger..	$8.23	$4.51	$12.21	$4.63

Table 17

LAND-BASED AIRCRAFT

——	One BN 2A 9 Seats 357 hrs Plus One Widgeon 5 Seats 194 hrs	One BN 2A 9 Seats 1,960 hrs Plus One Widgeon 5 Seats 194 hrs	One DC-3 26 Seats 124 hrs Plus One Widgeon 5 Seats 194 hrs	One DC-3 26 Seats 677 hrs Plus One Widgeon 5 Seats 194 hrs
	$	$	$	$
Direct operating costs ..	31,467	39,535	37,767	48,317
Hourly operating costs ..	22,203	56,442	35,685	63,724
Indirect costs	64,330	98,023	55,658	84,959
	118,000	183,000	128,000	197,000
Passenger demand, Stewart Island	7,283	40,000	7,283	40,000
Average passenger per flight ..	5.4	5.4	15.6	15.6
Load factor	60%	60%	60%	60%
Remote Area Services				
With cross-subsidisation over both services:	$	$	$	$
Total costs	19,030	19,030	19,030	19,030
Hourly costs	98.10	98.10	98.10	98.10
Single flight cost	65.85	65.85	65.85	65.85
With independent costs:				
Total costs	25,604	25,604	25,604	25,604
Hourly costs	131.98	131.98	131.98	131.98
Single flight costs.. ..	88.60	88.60	88.60	88.60
Stewart Island Services				
With cross-subsidisation over both services:				
Total costs	$98,970	$163,970	$108,970	$177,970
Hourly costs	$264.00	$84.00	$878.80	$262.88
Single flight costs.. ..	$73.71	$22.14	$223.34	$69.41
Revenue seat-mile costs ..	37.78c	11.39c	39.78c	12.36c
Average fare per passenger..	$13.60	$4.10	$14.32	$4.45
With independent costs:				
Total costs	$92,396	$157,396	$102,396	$171,396
Hourly costs	$258.81	$80.43	$825.77	$253.17
Single flight costs.. ..	$68.44	$21.25	$219.26	$66.85
Revenue seat-mile costs ..	34.7c	10.9c	38.4c	11.9c
Average fare per passenger..	$12.69	$3.93	$14.06	$4.28

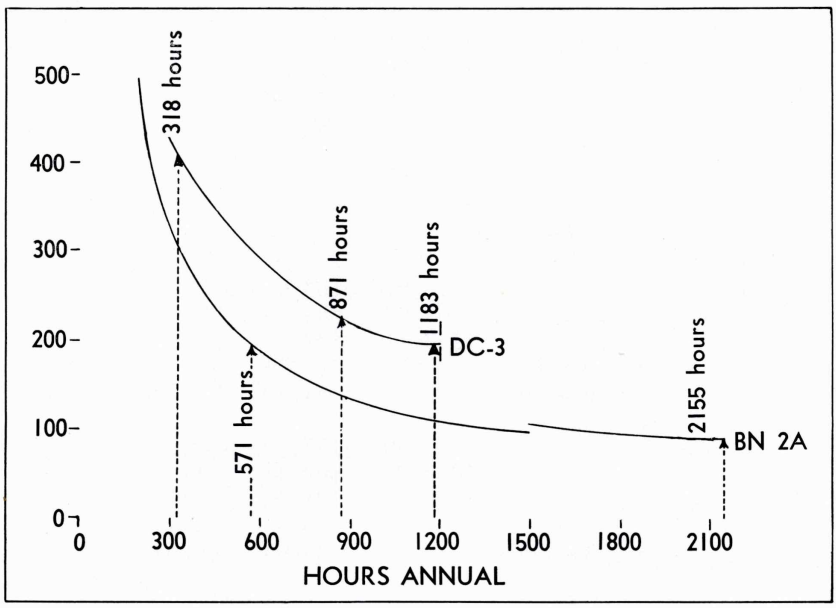
Table 18

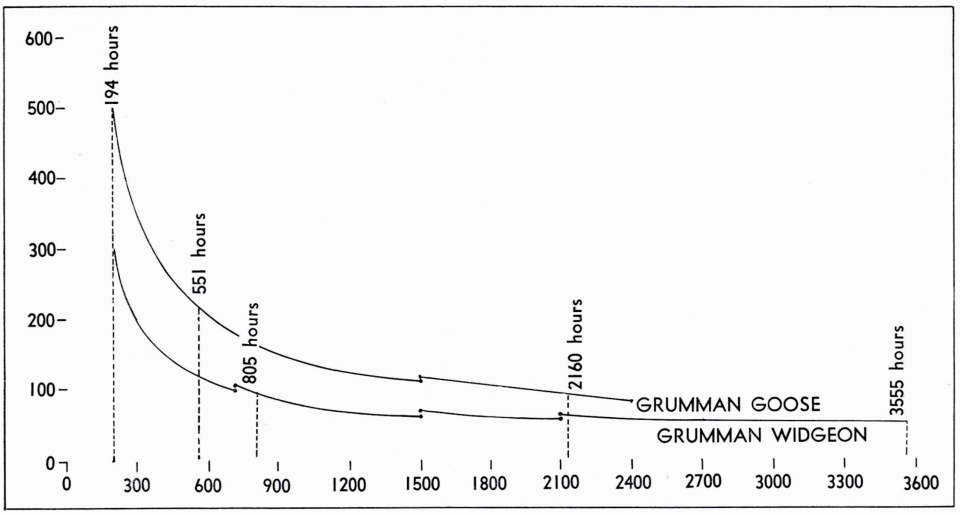
WIDGEON COSTS FOR REMOTE AREA SERVICES WITHOUT CROSS-SUBSIDY FROM STEWART ISLAND SERVICES

	(194 hours) (289 flights) $	
Direct operating costs	14,900	
Hourly operating costs	3,661	
Indirect costs	6,943	
Total costs	$25,604	
Cost per hour	$25,604	194 hrs = $132
Cost per flight	$25,604	289 flights = $88.60

Element of subsidy required per flight:
$88.60 minus $65.85 = $22.75
Annual subsidy required:
$22.75 x 289 flights = $6,575 or 25.7 percent of total cost $25,604

STEWART ISLAND LAND-BASED OPERATIONS IN CONJUNCTION WITH WIDGEON SERVICES TO FIORDLAND





Graphs A and B show the reduction of operating costs which may apply when hourly utilisation factor increases to cater for say 40,000 passenger traffic between Stewart Island and Invercargill.

It can also be deduced from the tables, as already mentioned, that a change from the existing Widgeon aircraft service to any other aircraft, whether amphibian or land based, would require a large increase in passenger demand before a comparable fare structure could be attained.

Fundamentals

It has been said that the type of service to Stewart Island provided by the Grumman Widgeon, has changed very little in the past 21 years. The survey team is bound to say that all with whom they came in contact over this survey have been high in their praise of the reliability, frequency, and convenience of the service. It has been said that apart from a few new houses and other buildings, the appearance of Halfmoon Bay has remained the same during this period. It has also been said that the character of Halfmoon Bay, Oban township, has changed not at all. The amphibian service has become, for many, a part of that character. More objectively, the amphibian provides a service into the heart of the area where people live and work—a convenience that could not be equalled by a land-based aircraft.

If the Widgeon aircraft was due for replacement, the survey team have not been able to ascertain reasons to justify this, other than

that the aircraft is old by aviation standards, if this could be termed a justification. But then the aircraft flying today, although approximately the same shape, is substantially different from the aircraft introduced to the service 21 years ago. Modified, new engined, and many airframe parts replaced, it is reliably reported by those who have carried out work on the aircraft that it can continue for many years to come in this type of service and at least another 10 years.

The service operates at a profit and failing any dramatic change in the factors mentioned above, which cannot be conjectured at this stage, there would seem to be no logical reason to change the existing situation as it relates to the Stewart Island air service.

Recommendations

It is recommended that:

(1) There is probably no requirement at the present time or in the next 5 to 10 years at least to construct an airfield at Stewart Island.

(2) Inquiries should be promulgated and pursued with aircraft firms concerned in construction of water-landing aircraft, to ascertain likelihood of production of aircraft as a suitable replacement to the Grumman Widgeon.

(3) Should a larger amphibian-type aircraft be required and existing operators are unable to finance a suitable replacement aircraft for this service, then Government finance be considered towards the cost of purchase of such an aircraft rather than expenditure on construction of an airstrip.

(4) In the long term further consideration be given to suitable alternative means of transport to the island by means of helicopters, hovercraft, hydrofoil, and any other means which may well be developed in the years to come.

(5) Regardless of the matters mentioned above, a full engineering survey should be undertaken of the possible airport site. It is suggested that this could be done in conjunction with the road survey.

4. ROAD SERVICES

These must be analysed under two groupings—Roads and Transport Services.

Existing Services

ROADS

Background

Stewart Island has 26 miles of road graded as "Class 1" gravel or metal county road with approximately 1 mile of sealed surface included. Of this total, 12 miles can be used by standard road vehicles and the remainder only by 4-wheel-drive vehicles. The map attached as appendix I indicates the extent of the 12 miles of road linking the various bays and serving the township of Oban. This roading system has evolved from the tracks which earlier joined the bays, hamlets, etc., and which had been the result of surveys in the 1870s.

The roading system adjacent to Halfmoon Bay was begun in the period 1883–86 when the Survey Department and the Public Works Department made grants respectively of £500 and £60 for the commencment of a road from Port William in the north to Ackers Point in the south. During the period 1888–93 a total of £1,400 was spent by the Public Works Department on extending and improving the existing roads and tracks. By 1900 about £2,600 had been spent on the roads radiating from Halfmoon Bay. These roads were unmetalled, narrow bush tracks and were practically impassable in the winter for the animal-drawn traffic. About 1905 a start was made to metal the roads, but still only to a "dray-road" standard. The greatest upsurge in roading was probably during the depression years when a permanent foreman was employed to supervise the labour of the "unemployed" gangs.

In later years, roading has been controlled by the amount of public moneys available in the form of rates levied by local government and in the form of grants and subsidies from Central Government. Both have been increased over the years until total expenditure on roading in Stewart Island over the 11years ending 31 March 1971 has been $94,359, of which the Government's share has been $73,138, and the county's share $21,221—See appendix II. The sum spent on road *maintenance* during that period was $77,503, with the Government providing $64,018, and the county $13,485. During the later years the expenditure on maintenance has increased and this is illustrated by the table attached as appendix III. Despite this increasing rate of expenditure the roads are still in a poor condition, as illustrated by figures 17, 18, and 19.

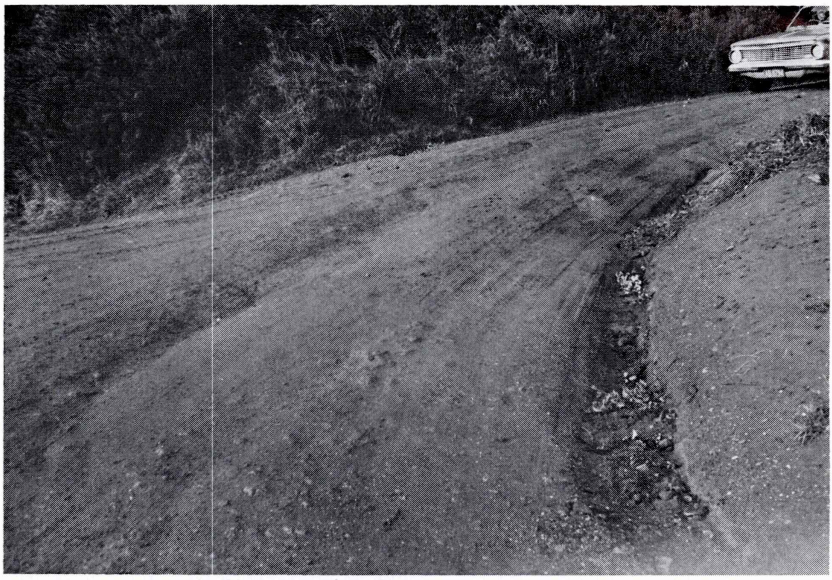


Figure 17. Corner of Excelsior Road adjacent to post office.

Figure 18. Kaipipi Road—near South Seas Hotel.

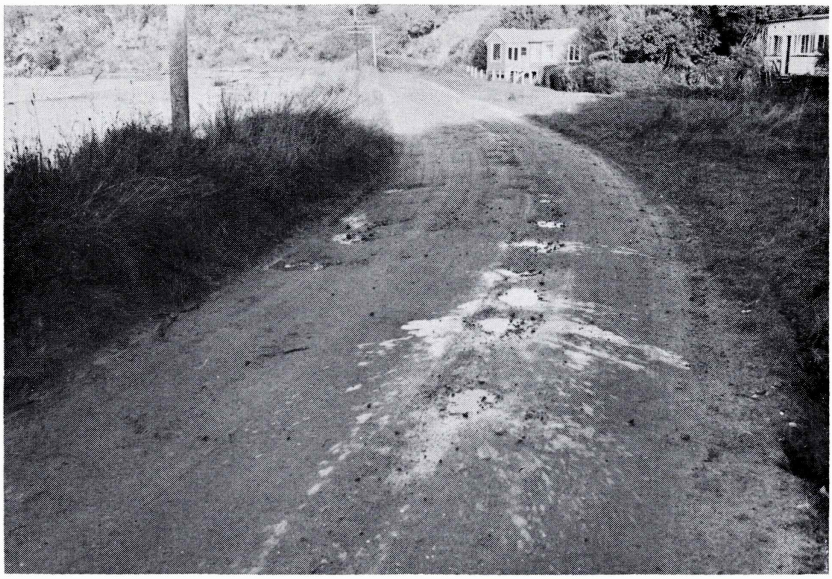


Figure 19. Portion of Butterfields Beach Road

Proposals

In 1971 the county council proposed a 5-year plan to upgrade the 12 miles of link roads to Group 1 standard as defined by the "Guide to Design of Rural Roads" (produced by the New Zealand Counties Association and adopted by the National Road Board—See appendix IV). As can be seen in appendix II, the county could make approximately $3,000 available annually from its general rates levy for this purpose. The National Roads Board agreed with this proposal and also agreed to provide a 5 to 1 subsidy over the 5 years ending 31 March 1976. The board envisages the programme culminating in 1976 with the sealing of all roads. The board feels that the total sum of $90,000 will allow the programme to be successful. This would then have the effect of lowering maintenance costs and a much lower rate of subsidy would then be required for some years before any major expenditure would become necessary.

Comment

However, discussions with the Southland and the Stewart Island County Councils did not bear out this belief. The Stewart Island County Council has endeavoured to keep to the timetable intended but there are several major problems which would seem to prevent

the fulfillment of the programme if present methods are to be continued. These are:

(a) *Materials:* Stewart Island is hilly and bush-clad. The rivers are small and few and there is practically no natural supply of gravel. Small quantities can be found on Bravo Island—one of the outlying islands—but this is both difficult and expensive to obtain, or it can be brought on the *Wairua* from the mainland but only in small quantities and at a cost that almost prohibits its use, certainly in any sizable quantity. The only material readily and reasonably cheaply available is local rock which could be crushed in sufficient quantity to form a satisfactory under-surface but unless a reasonable amount of it can be laid—one estimate is 20 cubic yards to the chain—it quickly pulverises and is blown and washed away. N. S. Seaward in *Stewart Island*, states: "*Rocks.* Granite rocks are common over most of the island. At Lonnekers and Ringaringa Beach there are decaying granites injected with bluish altered lavas, also decaying. Since the next stage is gritty clay it is no wonder that roads surfaced with this stuff are like porridge in the winter."

(b) *Plant and Machinery:* The Stewart Island County Council possesses the following plant:

One front-end loader—wheeled tractor with attachment.
One traxcavator—tracked tractor with attachment.
One grader.
One trailer.
One mobile crusher and small elevator.

All this plant was acquired second hand and requires a great deal of maintenance to keep it in operating condition. Maintenance costs for the 1972 financial year were $3,500. This seems exorbitant when viewed against a budget of $18,000 as it not only means a dissipation of badly needed funds but also means that plant is inoperative for lengthy periods. Great difficulty is experienced in moving heavy plant to and from the island as the lifting gear on the *Wairua* is restricted to a 5-ton lift. This means that all road-making equipment would have to be reduced to components and reassembled before use. It becomes virtually impossible therefore for the county to hire plant while its own is awaiting repair, etc. The present plant appears to be either too old or too small to meet the needs of the 5-year programme. For example, the crusher can produce only 10 cu yd of crushed rock daily. This is approximately 3 truck loads which could be disposed of very quickly.

(c) *Skill:* The county employs one foreman, one plant operator, and two casual workmen on the "outside" staff. The Southland County is always prepared to give advice but can offer little practical assistance, i.e., physical or on the ground, as it is occupied with its own problems and could not divert effort from any of its own ridings—nor could it be expected to.

(d) *Climate:* There is no meteorological data produced exclusively for Stewart Island but the figures given for Invercargill Aerodrome are thought to be sufficiently comparable for use. Those for 1970 are:

Annual rainfall ..	.. 1,086 mm or 43 in.
Rain days (0.2 mm or more)	.. 199
Wet days (2.5 mm or more)	.. 106

New Zealand Official Yearbook 1971

The *Encyclopaedia of New Zealand*, Volume III, states: "Climatic data is scanty. The average rainfall of Halfmoon Bay is 57 in. Strong winds frequently blow from the west". N. S. Seaward and Sheila Natusch in *Stewart Island* (revised in 1962) state: "The rainfall is fairly heavy but the climate on the whole is mild. The prevailing wind is from the west." Because the rather heavy rainfall and strong winds tend to dissipate the local crushed rock used as a road dressing, it becomes necessary to be continually patching the road surface at the expense of construction work. The island has recently experienced an extremely wet period this year and the roads are suffering because of this. (Illustrated by figures 20 and 21.)

Figure 20. Subdivision road off Kaipipi Road. Turning area in foreground.

Figure 21. Excelsior Road.

It would appear that more is needed than the present effort if the 5-year programme is to be completed. This is discussed further in the portion of this report dealing with future services.

Transport Services

Background

These, in common with the remainder of New Zealand, have grown according to the needs of the community and now probably reflect its economic circumstance. The following motor vehicles were licensed at the Halfmoon Bay Post Office as at 31 December 1971:

(a) *Licensed Motor Vehicles:*

Cars	42	
Goods service vehicles	20	Vehicles designed for the carriage of goods
Service coaches ..	1	
Trailers	21	
Exempt vehicles ..	6	Exempt certain forms of road taxation
Motor cycles ..	5	
Total ..	95	

The following table illustrates the increase in numbers of vehicles licensed over the past 5 years:

Table 19

LICENSING STATISTICS

	1967	1968	1969	1970	1971
Cars	20	32	27	29	42
Goods service vehicles . .	8	12	14	22	20
Private taxicabs . .	1	1	1	2	. .
Service coaches . .	1	1	1	1	1
Trailers	4	3	8	6	21
Motor cycles	. .	2	3	2	5
Total vehicles . .	58	54	57	65	95
Annual increase/decrease percent	. .	−6.9	+5.6	+14	+46

Source: Post Office Quarterly Returns.

The overall number of vehicles licensed has increased by 64 percent since 1967 with goods service vehicles showing an increase of 250 percent. These are mainly light trucks and vans, but the two licensed goods services operate three heavy trucks, including one bulk tanker for the delivery of fuel oil. The annual mileage is not great, but when compared against the total link roading of 12 miles, it means considerable movement on each roading section.

(b) *Licensed Transport Services:*

Licensed services on the island consist of:

Two licensed goods services	3 vehicles
One licensed taxi service	2 vehicles
Two licensed passenger services	2 vehicles

Source: Ministry of Transport.

The fishing industry is the main source of income and employment on the island. There are three fish processing plants providing freezing and packaging facilities. Two of these, the Stewart Island Fisherman's Co-operative and Kaipipi Fisheries, are located immediately adjacent to the wharf at Halfmoon Bay and have no transport problems. The third, that of Stewart Island Seafoods, is located at Horseshoe Bay about 3 miles from the ferry wharf. All frozen fish is carried to Bluff by the *Wairua* and this entails the movement of about 150 tons annually from Horseshoe Bay. There is also the inward movement to Horseshoe Bay of 500 gallons of diesel fuel weekly for electricity generation as well as the movement of all the materials necessary to operate the facility.

Comment

The two goods service operators appear to share the work available and to provide an adequate service. Little is known of the financial structure of either business, but from information gained when one business was transferred in 1970, it was evident that the financial returns from that business were meagre when compared with similar kinds of business in Southland. One operator relies for his profitability upon employment by the county council, but the county proposes to purchase and operate its own truck. When this eventuates it is extremely doubtful if the carrier could successfully continue to operate. It would seem that with a population of 410, Stewart Island can provide for only one economic goods service if county council work is not available; there is not a sufficient two-way flow of goods to provide for more.

The two passenger services are equipped with nine seater minibuses and engage in tour and charter work. The services appear to cope with the normal demand but would possibly not be adequate when larger tour parties arrive on the *Wairua*. Unless there is a significant increase in the numbers of visitors, the present services would seem to be sufficient considering the present roading system.

The taxi service consists of two cars owned by one operator. In the absence of comment, the service must be considered adequate.

NOTE: A speed limit of 20 mph is in force on Stewart Island.

Future Requirements

ROADS

Comment

The current system of road construction and maintenance, because of the problems outlined, is not making sufficient progress to meet the 1976 deadline. The photographs shown in this report were taken over the entire roading system and represent it fairly. They show it to be in poor repair and deteriorating. This could be caused by the greatly increased numbers of vehicles using the roads as the wear could be attributed as much to vehicle useage as to climatic damage. The expenditure of $30,000 in the past 2 years has had little effect and point out the present method to be both ineffectual and wasteful. (Details of road surfaces are shown in figures 22, 23, and 24.)

The county council is most aware of this and devotes the major part of its effort to improving roading conditions. The council has gone to considerable lengths to find a logical answer within the confines of the budget and resources provided. A district and town planning scheme has been prepared, incorporating all the present

Figure 22. Incline on Ringaringa Beach Road.

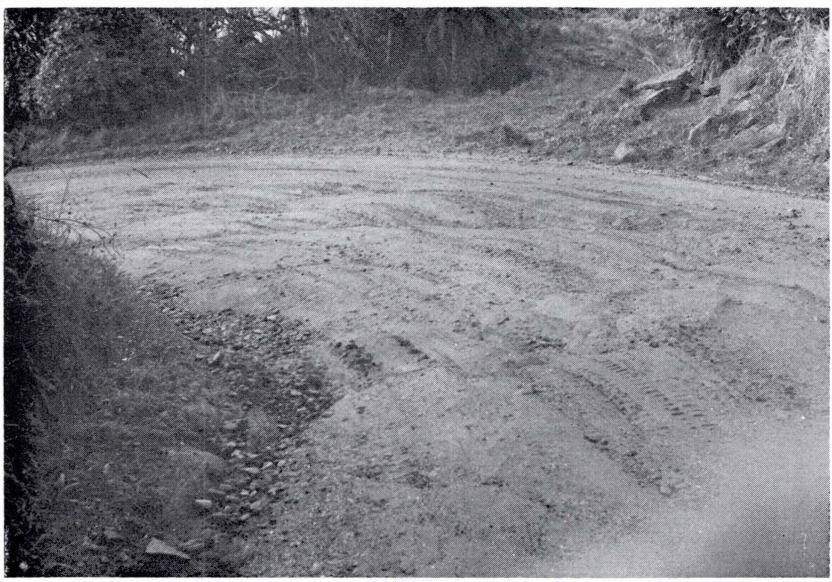


Figure 23. Corner on Horseshoe Bay Road.

Figure 24. Detail of Butterfields Beach Road.

roads and proposing a new road from Excelsior Road to Ringaringa Beach Road. This would provide for all requirements for the planning period which is from 1970–90. It has been suggested that a one-way roading system would be as effective and certainly cheaper than a two-way system. However, this and other suggestions mainly point out the need for a full engineering survey and, allied to that, a materials study. Many people have presented ideas and suggestions to the survey team, but while not doubting their desire to assist or their belief in the virtue of those ideas and suggestions, the team considers that more money may be dissipated if such a survey is not made as soon as possible. It is understood that a properly conducted survey would provide a sound plan, and give costing details for roading to the required standard. An unconfirmed estimate of cost is $10,000 with a further $5,000 for the ancillary legal survey.

Conclusions

It would hardly be possible for the county to carry this cost on its limited budget and provide road and track maintenance. It is suggested, therefore, that a special grant be made to enable such a survey to be undertaken. It is further suggested that if the survey supports the practicability of the immediate upgrading and sealing of the roads, that the work be contracted out and completed in one

operation. This would also require a large grant in 1 year, but this could mean a large reduction in subsidies for at least 10 years and could eventually prove to be the most economical course in the long term.

Transport Services

Comment

The present services are seen as adequate to cater for future needs. The population is practically static in number and there appears little prospect of any diversification in the economy by the movement of industry to the island or by large-scale agricultural or pastoral activities. The *Encyclopaedia of New Zealand*, Vol. III, states:

> Mining was soon found unprofitable, farming has had only meagre success as the climate and topography have made it difficult to clear the land and keep it grassed and resources of accessible millable timber was always limited. So Stewart Island is best known for fish, oysters, and muttonbirds.

Conclusions

As long as the islanders depend upon the fishing industry for the majority of their incomes, it would seem that no further transport services would be required. However, this could only be determined by the appropriate Transport Licensing Authority who would judge on the evidence provided to him*. If the demand for services increased, it is thought that provision of them could be safely left to the business community to make suitable decisions.

Recommendations

(1) That an engineering survey and a materials study be undertaken as soon as possible.

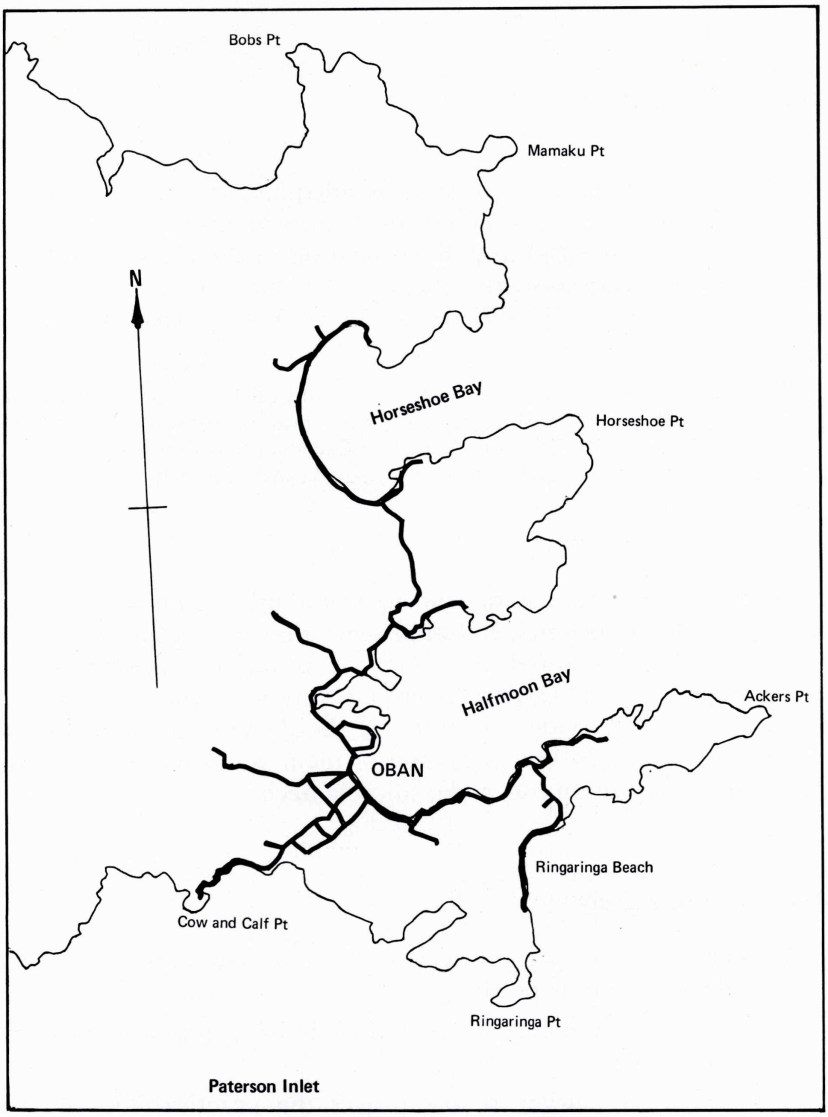
(2) That the cost of this survey and study be met by a grant from Government.

(3) That if the survey report proves the practicability of upgrading and sealing the 12 miles of roads, that this work be contracted out and completed in one operation.

(4) That a grant be made to cover the cost of recommendation 3 and that future subsidies and grants to the Stewart Island County Council for road works be reduced accordingly.

*See Transport Act 1962, Section 98–142.

APPENDIX I: MAP OF ROADING SYSTEM.



APPENDIX II:—DETAILS OF EXPENDITURE ON ROADS

Details of County/Road Board Expenditure for Year Ending 31 March 1971		1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
		$	$	$	$	$	$	$	$	$	$	$
National Roads Fund Expenditure—												
Maintenance	(S)	256	768	558	1,130	1,022	1,422	1,800	..	1,273	1,287	2,477
	(G)	480	260	480	170	988	2,112	6,852	3,780	1,486	6,255	7,130
Flood damage	(G)	4,264	..	..	..	..	..	..	..	..	..	..
Construction	(S)	704	..	..	88	28	..	..	..	..	..	..
	(G)	3,294	..	..	260	80	..	5,000	..	..	1,000	..
Bridge renewals	(G)	..	..	..	..	1,494	4,796	..	..	5,000	..	..
Total national roads funds ..	..	8,998	1,028	1,038	1,648	3,612	8,330	13,652	3,780	7,759	8,542	9,607
Roads Vote: Expenditure.. ..	..	122	400	222	400	600	594	278	404	783	481	800
Total Government expenditure ..	..	9,120	1,428	1,260	2,048	4,272	8,924	13,930	4,184	8,542	9,023	10,407
Local Authorities Expenditure—												
On roading works:												
Subsidised from national roads funds	..	1,280	766	1,244	1,624	1,164	2,128	3,628	..	1,754	1,462	2,076
Subsidised from roads vote ..	..	..	..	226	..	..	..	..	..	..	..	..
Non-subsidised road works	..	..	..	..	44	..	..	..	1,518	508	751	1,048
Total local authority expenditure ..	..	1,280	766	1,470	1,668	1,164	2,128	3,628	1,518	2,262	2,213	3,124
Total expenditure ..	..	10,400	2,194	2,730	3,716	5,436	11,052	17,558	5,702	10,804	11,236	13,531

(S) = Subsidy
(G) = Grant
Source: National Roads Boards Annual Reports.

APPENDIX III: FINANCIAL

	1968–69	1969–70	1970–71	1971–72
(a) *Rates and Charges Levied*	$	$	$	$
General rates ..	4,947	6,018	7,159	6,922
Other rates levied ..	1,979	2,006	4,935	5,230
Total rates levied ..	6,926	8,024	12,095	12,452
Total Received				
General rates ..	5,494	6,636	5,796	5,741
Other rates receipts ..	201	442	4,246	4,598
Total rates received ..	5,695	7,078	9,942	10,339
(b) *Grants Received*				
National Roads Board	7,759	8,542	9,607	15,000
Ministry of Works (Roads Vote) ..	782	562	800	800
(c) *Payments for Maintenance*				
County roads, bridges, streets, and footpaths	10,490	11,594	12,570	17,188
(d) *Assets*				
Cash balance ..	5,179	7,052	11,782	8,536

APPENDIX IV:—STANDARDS FOR RURAL ROADING

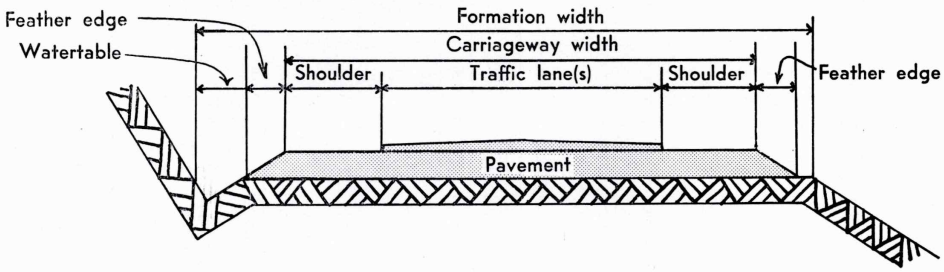
Group	1			2			3			4			5		
TRAFFIC VOLUME Average Daily Vehicles Average Daily Heavy Vehicles	Under 30 Under 10			30–100 10– 40			100–250 40– 80			250–500 80–150			500–1,000 150– 300		
Topography	Level	Rolling	Mountainous	Level	Rolling	Mountainous	Level	Rolling	Mountainous	Level	Rolling	Mountainous	Level	Rolling	Mountainous
Number of traffic lanes	1 or 2	1 or 2	1 (+)	2	1 or 2	1 (+)	2	2	1(+) or2	2	2	2	2	2	2
Design speed (mph)	As practicable	As practicable	As practicable	40/50	30/40	As practicable	50	40/50	30 or as practicable	50	40/50	30 or as practicable	50/60	50	30 or as practicable
Gradients Desirable	..	1 in 20	1 in 15	..	1 in 20	1 in 15	..	1 in 20	1 in 15	..	1 in 20	1 in 15	..	1 in 20	1 in 15
Maximum	..	1 in 8	1 in 8	..	1 in 10	1 in 8	..	1 in 12	1 in 8	..	1 in 15	1 in 10	..	1 in 15	1 in 10
Sight distance—Minimum (ft) ..	350	300	200	350	300	200	350	300	200	350	350	200	475	350	200
Carriageway width (ft)	12/16	12/16	12+	18	12/18	12+	20	20	20	22	22	22	24	24	24
Overall formation width Desirable..	24	24	24	30	24/30	24	32	32	32	34	34	34	36	36	36
Minimum	24	24	18	24	24	18	30	30	30	32	32	32	34	34	34
Road reserve width—Minimum ..	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.	1 ch.
Bridge widths (ft) Under 20 ft long..	12	12	12	24	24	24	24	24	24	24	24	24	24	24	24
20–100 ft long ..	12	12	12	12	12	12	24	24	24	24	24	24	24	24	24
over 100 ft long ..	12	12	12	12	12	12	12	12	12	24	24	24	24	24	24
Bridge design standards	H20	..	S16	44	or	H20	..	S16	..	T16	As applicable	As applicable	As applicable	As applicable	As applicable
Pavement strength Desirable..	9,000	9,000	9,000	9,000	9,000	9,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Wheel loading (lb) Minimum	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000
Type of surfacing	Metal	Metal	Metal	S/S or M	S/S or M	S/S or M	S/S	S/S	S/S	S/S	S/S	S/S	S/S	S/S	S/S

The method of surface sealing and the type of sealing carried out is a matter for the engineer in his own particular area.

Cross Section

Whilst no typical cross section is included in these standards, the following explanatory cross section is an indication that clarifies the test.

EXPLANATORY CROSS SECTION



5. CONCLUSIONS

In this report, as dictated by the terms of reference, are a large number of facts pertaining to transport between the South Island and Stewart Island and still more facts relating to transportation on Stewart Island itself.

It would seem that the need for this survey arose, perhaps, through misconceptions as to the cost of transport for people living and working at Stewart Island. It seemed significant to the survey team that much of the disaffection over transportation was caused largely, if not exclusively, by the somewhat dramatic increase in fares and freight rates on the ferry service in 1971. We feel that had successive increases proportionate to cost-of-living increases been introduced from time to time, it is likely that the inevitable high cost of fares and freight rates would have been accepted far less reluctantly than the recent increases. We think it relevant to observe here that periodic increases in air fares seem to have gone comparatively unnoticed.

Air fares between Stewart Island and Invercargill have increased by some 130 percent since 1960, yet passenger fares on the *Wairua* rose by 20 percent and freight rates for general cargo increased by approximately 100 percent since 1959. It can be deduced, then, that had fares and freight rates on the ferry service been kept in line with air fares it is probable that greater savings would have been achieved in the cost of operating the ferry.

It is indisputable that many of the residents of Stewart Island have chosen to live there and have accepted the higher costs involved in living and working in an off-shore island dependant as they undoubtedly are on a special type of transportation system.

Higher costs have been kept to a reasonable level by virtue of the subsidy paid towards the cost of operating the ferry vessel. The survey team feels that it is necessary for Government to continue to recognise the special needs for isolated communities such as that on Stewart Island. Notwithstanding this, we feel that every effort should be made to encourage diversification in the economy which it is thought should have the ultimate object of reducing the financial loss in the operation of the ferry service.

For the reasons already discussed in this paper, the survey team feels there is no adequate substitute for the system of transport operating to Stewart Island at the present time. There is no practical way, as we see it, of introducing a passenger carrying capability exclusively by air. If this were possible, air fares to the island would

have to be set at a level similar to existing sea fares to encourage use of the service by persons other than those that would be forced to use it. The effect of this would be a much greater cost to residents on the island in bringing all their requirements to the island by whatever sea service could be operated. Quite frankly, the survey team have been unable to envisage just how this sort of system could operate.

Use of a larger aircraft to carry all passenger traffic, if we based this on a figure of 40,000 currently using the sea and air transport, would entail development of a suitable airstrip. No one, as yet, has been able to accurately assess the cost of this. The construction of a suitable airstrip would involve a considerable amount of earth movement and the construction of roads to service the strip. It would seem anomalous to think of providing an airstrip when the present roading system is in such poor condition and in fact the residents have no footpaths and no adequate sewage disposal system.

We have suggested what we consider to be certain improvements in relation to the transport service between Stewart Island and the South Island. We have also made observations, some perhaps critical, of aspects of life on Stewart Island, as seen by people quite divorced from parochial influences that exist in all communities.

An oft-stated complaint to the team was that few employment opportunities exist on Stewart Island with the result that most young people quickly drift away to other parts of New Zealand seeking work. We recall being told that some young people spend the week-end on the island either invariably or on occasions, and the rest of the week in lodgings close to their work. If this is so, a large portion of their wages would go towards air fares, to get to their homes or place of work, and other expenses to maintain themselves whilst away from their homes.

We have stressed, and it is obvious, that the main problem with isolated communities such as the one on Stewart Island, is related to a comparatively small population being utterly dependant on transport facilities orientated towards a single industry. The industry is thriving and lucrative, but not so that it could support additional large numbers of people. To encourage more people to the island, either as residents or as visitors, necessitates, we think, diversification of the economy. The only possibility in this direction at this time is in the field of tourism. Increased use of transport facilities means a greater spread of the cost of providing facilities. How, then, are these additional residents or tourists going to be encouraged to live or visit the island?

We think the answer to this rests principally with the people of Stewart Island.

6. RECOMMENDATIONS

It is recommended that:

Sea Transport

(1) The Bluff - Stewart Island ferry service be widely promoted. A special attempt be made to attract off-season travellers.

(2) Minor alterations to the Halfmoon Bay wharf (removal of part of the roof and walls of the truck dock) be carried out.

(3) The Southland Harbour Board be asked to allocate a permanent berth for the *Wairua* on the island and to permit the construction of a ferry terminal.

(4) A ferry terminal be constructed comprising a cargo store and separate ship's store with passenger facilities and offices for Marine Department staff above. Following the provision of a cargo store, cargo receiving and handling facilities be provided at Bluff and assistance given to the clerk/wharfinger, Halfmoon Bay, for the release of cargo.

(5) Consideration now be given as to a suitable replacement vessel for the Bluff - Stewart Island ferry service.

(6) The intention to review fares and freight rates annually be reaffirmed, the review to be made following preparation of the financial accounts of the ferry service and associated operating statistics.

(7) If concession fares are to be continued, then it is considered that priority should be given to residents of Stewart Island over any other group.

(8) The rate charged for interest on capital should be subject to annual review.

(9) The rate allowed for insurance be subject to periodical review to ensure that the amount charged bears comparison with premiums which would be payable if a policy were taken out with an insurance company.

(10) Statistics relating to the *Wairua* be compiled by the Bluff office of the Marine Department so that a continuing review of operations can be made. These statistics should include: actual running hours, ticket sales, and passenger and freight flows.

Air Transport

(11) There is probably no requirement at the present time, or in the next 5 to 10 years at least, to construct an airfield at Stewart Island.

(12) Inquiries should be promulgated and pursued with aircraft firms concerned in construction of water-landing aircraft, to ascertain likelihood of production of aircraft as suitable replacement to the Grumman Widgeon.

(13) Should a larger amphibian-type aircraft be required and existing operators are unable to finance a suitable replacement aircraft for this service, then Government finance be considered towards the cost of purchase of such an aircraft rather than expenditure on construction of an airstrip.

(14) In the long term, consideration be given to suitable alternative means of transport to the island by means of helicopters, hovercraft, hydrofoil, and any other means which may well be developed in the years to come.

(15) Regardless of the matters mentioned above, a full engineering survey should be undertaken of the possible airport site. It is suggested that this could be done in conjunction with the road survey.

Road Transport

(16) An engineering survey and a materials study be undertaken as soon as possible.

(17) The cost of this survey and study be met by a grant from Government.

(18) If the survey report proves the practicability of upgrading and sealing the 12 miles of roads, that this work be contracted out and completed in one operation.

(19) A grant be made to cover the cost of Recommendation 18, and that future subsidies and grants to the Stewart Island County Council for road works be reduced accordingly.

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